

CETIFICATION

SDG No: JC16038 Laboratory: Accutest, New Jersey
 Site: BMSMC, Building 5 Area Matrix: Groundwater
 SM04.00.06
 Humacao, PR

SUMMARY: Groundwater samples (Table 1) were collected on the BMSMC facility – Building 5 area. The BMSMC facility is located in Humacao, PR. Samples were taken March 8-9, 2016 and were analyzed in Accutest Laboratory of Dayton, New Jersey that reported the data under SDG No.: JC16038. Results were validated using the latest guidelines (July, 2015) of the EPA Hazardous Waste Support Section and the QC criteria for SW 846 methods, latest revision, for low molecular weight alcohols (LMWA). The analyses performed are shown in Table 1. Individual data review worksheets are enclosed for each target analyte group. Data sample organic data samples summary form shows for analytes results that were qualified.

In summary the results are valid and can be used for decision taking purposes.

Table 1. Samples analyzed and analysis performed

| SAMPLE ID | SAMPLE DESCRIPTION | ANALYSIS PERFORMED |
|------------|--------------------|---|
| JC16038-1 | MW-13 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-2 | MW-7 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-3 | MW-3 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-4 | MW-5 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-5 | MW-16 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-6 | MW-16 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-7 | TB030902 | VOCs; LMWA |
| JC16038-8 | S-30 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-9 | FB030816 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |
| JC16038-10 | MW-11 | VOCs; SVOCs; NAPHTHALENE; 1,4-DIOXANE (SIM); PESTICIDES; LMWA |

Reviewer Name: Rafael Infante
 Chemist License 1888

Signature:

Date:

April 16, 2016



SGS Accutest

Report of Analysis

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| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-13 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-1 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204171.D | 1 | 03/16/16 | NH | n/a | n/a | VU9384 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | 0.28 | 1.0 | 0.19 | ug/l | J |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | 0.90 | 1.0 | 0.19 | ug/l | J |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | 30.1 | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-13 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-1 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | ND | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | ND | 1.0 | 0.17 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 106% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 108% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 103% | | 78-117% |



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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-13 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-1 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | F155577.D | 1 | 03/16/16 | SD | 03/15/16 | OP92078 | EF6543 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.0 | 0.93 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.0 | 1.4 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.0 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.0 | 0.87 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 0.82 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 0.67 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.0 | 1.4 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.31 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.0 | 1.5 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 83-32-9 | Acenaphthene | ND | 1.0 | 0.29 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 1.0 | 0.24 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.0 | 0.28 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.0 | 0.25 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.0 | 0.42 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.0 | 0.34 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.0 | 0.32 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.0 | 0.33 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.0 | 0.32 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.0 | 0.41 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.0 | 0.37 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.0 | 0.37 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.0 | 0.27 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.26 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.0 | 0.30 | ug/l | |
| 106-47-8 | 4-Chloroaniline | 1.3 | 5.0 | 0.23 | ug/l | J |
| 86-74-8 | Carbazole | ND | 1.0 | 0.29 | ug/l | |



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 E = Indicates value exceeds calibration range

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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-13
Lab Sample ID: JC16038-1
Matrix: AQ - Ground Water
Method: SW846 8270D SW846 3510C
Project: BMSMC, Building 5 Area, PR

Date Sampled: 03/09/16
Date Received: 03/11/16
Percent Solids: n/a

ABN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|--------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.0 | 0.43 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.0 | 0.35 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.0 | 0.26 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.0 | 0.34 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.0 | 0.28 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.0 | 0.27 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.0 | 0.26 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.0 | 0.32 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.0 | 0.53 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.0 | 0.37 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.79 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.0 | 0.29 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.24 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.0 | 0.31 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.77 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.0 | 0.23 | ug/l | |
| 86-73-7 | Fluorene | ND | 1.0 | 0.29 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.0 | 0.42 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.0 | 0.36 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 10 | 0.29 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.0 | 0.22 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.0 | 0.38 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.0 | 0.29 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.0 | 0.21 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.0 | 0.24 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.0 | 0.34 | ug/l | |
| 91-20-3 | Naphthalene | ND | 1.0 | 0.28 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.0 | 0.46 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.0 | 0.31 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.0 | 0.29 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.0 | 0.23 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.0 | 0.34 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.0 | 0.36 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 367-12-4 | 2-Fluorophenol | 42% | | 14-88% |
| 4165-62-2 | Phenol-d5 | 30% | | 10-110% |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-13 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-1 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 118-79-6 | 2,4,6-Tribromophenol | 78% | | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 75% | | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 68% | | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 73% | | 10-126% |



ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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| | | | |
|--------------------------|--------------------------------|------------------------|----------|
| Client Sample ID: | MW-13 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-1 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D BY SIM SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15636.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 123-91-1 | 1,4-Dioxane | ND | 0.10 | 0.053 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 77% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 77% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 77% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

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| | | | |
|------------------------------------|--|-------------------------|--|
| Client Sample ID: MW-13 | | Date Sampled: 03/09/16 | |
| Lab Sample ID: JC16038-1 | | Date Received: 03/11/16 | |
| Matrix: AQ - Ground Water | | Percent Solids: n/a | |
| Method: SW846-8015C (DAI) | | | |
| Project: BSMC, Building 5 Area, PR | | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103819.D | 1 | 03/18/16 | XPL | n/a | n/a | GGH5213 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 77% | | 56-145% |
| 111-27-3 | Hexanol | 75% | | 56-145% |



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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

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| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-7 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-2 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204139.D | 1 | 03/15/16 | NH | n/a | n/a | VU9383 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | 1.4 | 1.0 | 0.19 | ug/l | |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | 7.3 | 1.0 | 0.19 | ug/l | |
| 541-73-1 | 1,3-Dichlorobenzene | 0.30 | 1.0 | 0.23 | ug/l | J |
| 106-46-7 | 1,4-Dichlorobenzene | 1.1 | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | 1.4 | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | 1.7 | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | ND | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

Client Sample ID: MW-7
 Lab Sample ID: JC16038-2
 Matrix: AQ - Ground Water
 Method: SW846 8260C
 Project: BSMC, Building 5 Area, PR

Date Sampled: 03/09/16
 Date Received: 03/11/16
 Percent Solids: n/a

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 0.56 | 1.0 | 0.24 | ug/l | J |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | 0.66 | 1.0 | 0.22 | ug/l | J |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | 5.8 | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | 0.50 | 1.0 | 0.17 | ug/l | J |
| 1330-20-7 | Xylene (total) | 6.3 | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 105% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 107% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 100% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 103% | | 78-117% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-7 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-2 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | F155578.D | 1 | 03/16/16 | SD | 03/15/16 | OP92078 | EF6543 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.3 | 0.98 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.3 | 1.5 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.1 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.3 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 11 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.3 | 0.92 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 0.86 | ug/l | |
| | 3&4-Methylphenol | ND | 2.1 | 0.71 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.3 | 1.5 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 11 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 108-95-2 | Phenol | ND | 2.1 | 0.33 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.3 | 1.6 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 83-32-9 | Acenaphthene | ND | 1.1 | 0.30 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 1.1 | 0.25 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.1 | 0.29 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.1 | 0.26 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.1 | 0.44 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.3 | 0.35 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.1 | 0.33 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.1 | 0.35 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.1 | 0.33 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.1 | 0.43 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.1 | 0.39 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.1 | 0.39 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.1 | 0.29 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.1 | 0.27 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.1 | 0.31 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.3 | 0.24 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.1 | 0.31 | ug/l | |



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 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-7
Lab Sample ID: JC16038-2
Matrix: AQ - Ground Water
Method: SW846 8270D SW846 3510C
Project: BMSMC, Building 5 Area, PR

Date Sampled: 03/09/16
Date Received: 03/11/16
Percent Solids: n/a

ABN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|--------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.1 | 0.45 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.1 | 0.36 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.1 | 0.27 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.1 | 0.36 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.1 | 0.30 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.1 | 0.29 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.1 | 0.28 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.1 | 0.34 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.1 | 0.56 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.1 | 0.38 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.3 | 0.29 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.83 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.1 | 0.30 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.26 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.1 | 0.33 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.1 | 0.81 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.1 | 0.24 | ug/l | |
| 86-73-7 | Fluorene | ND | 1.1 | 0.31 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.1 | 0.44 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.1 | 0.38 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 11 | 0.31 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.1 | 0.23 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.1 | 0.40 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.1 | 0.30 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.1 | 0.30 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.3 | 0.22 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.3 | 0.25 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.3 | 0.36 | ug/l | |
| 91-20-3 | Naphthalene | ND | 1.1 | 0.30 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.1 | 0.49 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.1 | 0.33 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.3 | 0.31 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.1 | 0.24 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.1 | 0.35 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.1 | 0.38 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 367-12-4 | 2-Fluorophenol | 44% | | 14-88% |
| 4165-62-2 | Phenol-d5 | 33% | | 10-110% |

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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-7 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-2 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 118-79-6 | 2,4,6-Tribromophenol | 85% | | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 73% | | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 68% | | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 76% | | 10-126% |



ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

| | | | |
|-------------------|--------------------------------|-----------------|----------|
| Client Sample ID: | MW-7 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-2 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D BY SIM SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15637.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | ND | 0.11 | 0.014 | ug/l | |
| 123-91-1 | 1,4-Dioxane | 1.72 | 0.11 | 0.056 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 79% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 74% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 89% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-7 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-2 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAI) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103822.D | 1 | 03/18/16 | XPL | n/a | n/a | GGH5213 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 93% | | 56-145% |
| 111-27-3 | Hexanol | 94% | | 56-145% |



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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 2

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-3 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-3 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204147.D | 1 | 03/15/16 | NH | n/a | n/a | VU9383 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | 0.32 | 0.50 | 0.24 | ug/l | J |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | 0.36 | 1.0 | 0.19 | ug/l | J |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | 4.0 | 5.0 | 0.28 | ug/l | J |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | 0.27 | 1.0 | 0.19 | ug/l | J |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | 0.45 | 1.0 | 0.27 | ug/l | J |
| 76-13-1 | Freon 113 | ND | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-3 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-3 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | 18.6 | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | 4.9 | 5.0 | 0.22 | ug/l | J |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | 0.42 | 1.0 | 0.16 | ug/l | J |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | 0.61 | 1.0 | 0.38 | ug/l | J |
| 95-47-6 | o-Xylene | 0.98 | 1.0 | 0.17 | ug/l | J |
| 1330-20-7 | Xylene (total) | 1.6 | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 105% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 108% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 104% | | 78-117% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-3 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-3 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | F155579.D | 1 | 03/16/16 | SD | 03/15/16 | OP92078 | EF6543 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.0 | 0.93 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.0 | 1.4 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.0 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.0 | 0.87 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 0.82 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 0.67 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.0 | 1.4 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.31 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.0 | 1.5 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 83-32-9 | Acenaphthene | 0.67 | 1.0 | 0.29 | ug/l | J |
| 208-96-8 | Acenaphthylene | ND | 1.0 | 0.24 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.0 | 0.28 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.0 | 0.25 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.0 | 0.42 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.0 | 0.34 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.0 | 0.32 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.0 | 0.33 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.0 | 0.32 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.0 | 0.41 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.0 | 0.37 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.0 | 0.37 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.0 | 0.27 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.26 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.0 | 0.30 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.0 | 0.23 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.0 | 0.29 | ug/l | |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-3
 Lab Sample ID: JC16038-3
 Matrix: AQ - Ground Water
 Method: SW846 8270D SW846 3510C
 Project: BMSMC, Building 5 Area, PR

Date Sampled: 03/09/16
 Date Received: 03/11/16
 Percent Solids: n/a

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|--------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.0 | 0.43 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.0 | 0.35 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.0 | 0.26 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.0 | 0.34 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.0 | 0.28 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.0 | 0.27 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.0 | 0.26 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.0 | 0.32 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.0 | 0.53 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.0 | 0.37 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.79 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.0 | 0.29 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.24 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.0 | 0.31 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.77 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.0 | 0.23 | ug/l | |
| 86-73-7 | Fluorene | 1.2 | 1.0 | 0.29 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.0 | 0.42 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.0 | 0.36 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 10 | 0.29 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.0 | 0.22 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.0 | 0.38 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.0 | 0.29 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 52.4 | 1.0 | 0.29 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.0 | 0.21 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.0 | 0.24 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.0 | 0.34 | ug/l | |
| 91-20-3 | Naphthalene | 3.6 | 1.0 | 0.28 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.0 | 0.46 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.0 | 0.31 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.0 | 0.29 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.0 | 0.23 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.0 | 0.34 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.0 | 0.36 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 367-12-4 | 2-Fluorophenol | 42% | | 14-88% |
| 4165-62-2 | Phenol-d5 | 32% | | 10-110% |

ND = Not detected MDL = Method Detection Limit
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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-3 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | IC16038-3 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 118-79-6 | 2,4,6-Tribromophenol | 71% | | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 67% | | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 64% | | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 68% | | 10-126% |



ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

| | | | |
|--------------------------|--------------------------------|------------------------|----------|
| Client Sample ID: | MW-3 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-3 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D BY SIM SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15638.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | 3.57 | 0.10 | 0.013 | ug/l | |
| 123-91-1 | 1,4-Dioxane | ND | 0.10 | 0.053 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 63% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 68% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 75% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID: MW-3
Lab Sample ID: JC16038-3
Matrix: AQ - Ground Water
Method: SW846-8015C (DAD)
Project: BSMC, Building 5 Area, PR

Date Sampled: 03/09/16
Date Received: 03/11/16
Percent Solids: n/a

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103823.D | 1 | 03/18/16 | XPL | n/a | n/a | GGH5213 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 93% | | 56-145% |
| 111-27-3 | Hexanol | 91% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 2

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-5 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-4 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204148.D | 1 | 03/15/16 | NH | n/a | n/a | VU9383 |
| Run #2 | A221006.D | 20 | 03/17/16 | NH | n/a | n/a | VA8370 |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | 5.0 ml |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | 7.4 | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | 0.36 | 1.0 | 0.19 | ug/l | J |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | 0.48 | 1.0 | 0.19 | ug/l | J |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | 0.29 | 1.0 | 0.27 | ug/l | J |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | 1040 * | 20 | 5.4 | ug/l | |
| 76-13-1 | Freon 113 | ND | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-5
Lab Sample ID: JC16038-4
Matrix: AQ - Ground Water
Method: SW846 8260C
Project: BSMC, Building 5 Area, PR

Date Sampled: 03/09/16
Date Received: 03/11/16
Percent Solids: n/a

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|-------------------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | 20.8 | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 11.8 | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | 0.25 | 1.0 | 0.16 | ug/l | J |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | 2480 ^a | 20 | 7.5 | ug/l | |
| 95-47-6 | o-Xylene | 0.42 | 1.0 | 0.17 | ug/l | J |
| 1330-20-7 | Xylene (total) | 2480 ^a | 20 | 3.3 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 105% | 104% | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 107% | 102% | 73-122% |
| 2037-26-5 | Toluene-D8 | 100% | 100% | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 100% | 100% | 78-117% |

(a) Result is from Run# 2



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-5
Lab Sample ID: JC16038-4
Matrix: AQ - Ground Water
Method: SW846 8270D SW846 3510C
Project: BMSMC, Building 5 Area, PR

Date Sampled: 03/09/16
Date Received: 03/11/16
Percent Solids: n/a

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | F155580.D | 1 | 03/16/16 | SD | 03/15/16 | OP92078 | EF6543 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.3 | 0.98 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.3 | 1.5 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.1 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | 5.7 | 5.3 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 11 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.3 | 0.92 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 0.86 | ug/l | |
| | 3&4-Methylphenol | ND | 2.1 | 0.71 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.3 | 1.5 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 11 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 108-95-2 | Phenol | ND | 2.1 | 0.33 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.3 | 1.6 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 83-32-9 | Acenaphthene | ND | 1.1 | 0.30 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 1.1 | 0.25 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.1 | 0.29 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.1 | 0.26 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.1 | 0.44 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.3 | 0.35 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.1 | 0.33 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.1 | 0.35 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.1 | 0.33 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.1 | 0.43 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.1 | 0.39 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.1 | 0.39 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.1 | 0.29 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.1 | 0.27 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.1 | 0.31 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.3 | 0.24 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.1 | 0.31 | ug/l | |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-5 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-4 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|--------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.1 | 0.45 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.1 | 0.36 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.1 | 0.27 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.1 | 0.36 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.1 | 0.30 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.1 | 0.29 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.1 | 0.28 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.1 | 0.34 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.1 | 0.56 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.1 | 0.38 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.3 | 0.29 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.83 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.1 | 0.30 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.26 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.1 | 0.33 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.1 | 0.81 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.1 | 0.24 | ug/l | |
| 86-73-7 | Fluorene | ND | 1.1 | 0.31 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.1 | 0.44 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.1 | 0.38 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 11 | 0.31 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.1 | 0.23 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.1 | 0.40 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.1 | 0.30 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 0.63 | 1.1 | 0.30 | ug/l | J |
| 88-74-4 | 2-Nitroaniline | ND | 5.3 | 0.22 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.3 | 0.25 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.3 | 0.36 | ug/l | |
| 91-20-3 | Naphthalene | 2.7 | 1.1 | 0.30 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.1 | 0.49 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.1 | 0.33 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.3 | 0.31 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.1 | 0.24 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.1 | 0.35 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.1 | 0.38 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 367-12-4 | 2-Fluorophenol | 42% | | 14-88% |
| 4165-62-2 | Phenol-d5 | 32% | | 10-110% |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | |
|---|--------------------------------|
| Client Sample ID: MW-5 | |
| Lab Sample ID: JC16038-4 | Date Sampled: 03/09/16 |
| Matrix: AQ - Ground Water | Date Received: 03/11/16 |
| Method: SW846 8270D SW846 3510C | Percent Solids: n/a |
| Project: BSMC, Building 5 Area, PR | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 118-79-6 | 2,4,6-Tribromophenol | 83% | | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 71% | | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 70% | | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 73% | | 10-126% |



ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-5
Lab Sample ID: JC16038-4
Matrix: AQ - Ground Water
Method: SW846 8270D BY SIM SW846 3510C
Project: BSMC, Building 5 Area, PR

Date Sampled: 03/09/16
Date Received: 03/11/16
Percent Solids: n/a

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15639.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | 2.48 | 0.11 | 0.014 | ug/l | |
| 123-91-1 | 1,4-Dioxane | 0.734 | 0.11 | 0.056 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 73% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 73% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 80% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
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 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-5 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-4 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAD) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103824.D | 1 | 03/18/16 | XPL | n/a | n/a | GGH5213 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 100% | | 56-145% |
| 111-27-3 | Hexanol | 97% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 2

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-16 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-5 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | A221005.D | 1 | 03/17/16 | NH | n/a | n/a | VA8370 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | 0.34 | 1.0 | 0.19 | ug/l | J |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | 12.2 | 1.0 | 0.19 | ug/l | |
| 541-73-1 | 1,3-Dichlorobenzene | 0.49 | 1.0 | 0.23 | ug/l | J |
| 106-46-7 | 1,4-Dichlorobenzene | 2.5 | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | 58.5 | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | |
|---|--------------------------------|
| Client Sample ID: MW-16 | Date Sampled: 03/09/16 |
| Lab Sample ID: JC16038-5 | Date Received: 03/11/16 |
| Matrix: AQ - Ground Water | Percent Solids: n/a |
| Method: SW846 8260C | |
| Project: BSMC, Building 5 Area, PR | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | ND | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | ND | 1.0 | 0.17 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 103% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 100% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 100% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 99% | | 78-117% |



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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-16 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-5 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | F155581.D | 1 | 03/16/16 | SD | 03/15/16 | OP92078 | EF6543 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.3 | 0.98 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.3 | 1.5 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.1 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.3 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 11 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.3 | 0.92 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 0.86 | ug/l | |
| | 3&4-Methylphenol | ND | 2.1 | 0.71 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.3 | 1.5 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 11 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 108-95-2 | Phenol | ND | 2.1 | 0.33 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.3 | 1.6 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.3 | 1.5 | ug/l | |
| 83-32-9 | Acenaphthene | ND | 1.1 | 0.30 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 1.1 | 0.25 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.1 | 0.29 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.1 | 0.26 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.1 | 0.44 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.3 | 0.35 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.1 | 0.33 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.1 | 0.35 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.1 | 0.33 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.1 | 0.43 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.1 | 0.39 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.1 | 0.39 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.1 | 0.29 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.1 | 0.27 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.1 | 0.31 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.3 | 0.24 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.1 | 0.31 | ug/l | |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-16 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-5 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|--------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.1 | 0.45 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.1 | 0.36 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.1 | 0.27 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.1 | 0.36 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.1 | 0.30 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.1 | 0.29 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.1 | 0.28 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.1 | 0.34 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.1 | 0.56 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.1 | 0.38 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.3 | 0.29 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.83 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.1 | 0.30 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.26 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.1 | 0.33 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.1 | 0.81 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.1 | 0.24 | ug/l | |
| 86-73-7 | Fluorene | ND | 1.1 | 0.31 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.1 | 0.44 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.1 | 0.38 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 11 | 0.31 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.1 | 0.23 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.1 | 0.40 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.1 | 0.30 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.1 | 0.30 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.3 | 0.22 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.3 | 0.25 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.3 | 0.36 | ug/l | |
| 91-20-3 | Naphthalene | ND | 1.1 | 0.30 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.1 | 0.49 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.1 | 0.33 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.3 | 0.31 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.1 | 0.24 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.1 | 0.35 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.1 | 0.38 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 367-12-4 | 2-Fluorophenol | 42% | | 14-88% |
| 4165-62-2 | Phenol-d5 | 32% | | 10-110% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-16 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-5 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 118-79-6 | 2,4,6-Tribromophenol | 77% | | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 72% | | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 66% | | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 71% | | 10-126% |



ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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| | | | |
|--------------------------|--------------------------------|------------------------|----------|
| Client Sample ID: | MW-16 | | |
| Lab Sample ID: | JC16038-5 | Date Sampled: | 03/09/16 |
| Matrix: | AQ - Ground Water | Date Received: | 03/11/16 |
| Method: | SW846 8270D BY SIM SW846 3510C | Percent Solids: | n/a |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15640.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 950 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | ND | 0.11 | 0.014 | ug/l | |
| 123-91-1 | 1,4-Dioxane | 0.388 | 0.11 | 0.056 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 74% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 73% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 79% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

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| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-16 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-5 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAI) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103825.D | 1 | 03/18/16 | XPL | n/a | n/a | GGH5213 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 96% | | 56-145% |
| 111-27-3 | Hexanol | 93% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

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| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-16D | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-6 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204161.D | 1 | 03/15/16 | NH | n/a | n/a | VU9383 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | 0.32 | 1.0 | 0.19 | ug/l | J |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | 12.7 | 1.0 | 0.19 | ug/l | |
| 541-73-1 | 1,3-Dichlorobenzene | 0.46 | 1.0 | 0.23 | ug/l | J |
| 106-46-7 | 1,4-Dichlorobenzene | 2.5 | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | 44.0 | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-16D | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-6 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | ND | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | ND | 1.0 | 0.17 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 106% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 107% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 103% | | 78-117% |



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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-16D | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-6 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | F155582.D | 1 | 03/16/16 | SD | 03/15/16 | OP92078 | EF6543 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 970 ml | 1.0 ml |
| Run #2 | | |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.2 | 0.96 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.2 | 1.4 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.1 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.2 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.2 | 0.90 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 0.84 | ug/l | |
| | 3&4-Methylphenol | ND | 2.1 | 0.69 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.2 | 1.5 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 108-95-2 | Phenol | ND | 2.1 | 0.32 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 83-32-9 | Acenaphthene | 0.44 | 1.0 | 0.29 | ug/l | J |
| 208-96-8 | Acenaphthylene | ND | 1.0 | 0.25 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.1 | 0.28 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.0 | 0.25 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.1 | 0.43 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.2 | 0.35 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.0 | 0.32 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.0 | 0.34 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.0 | 0.33 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.0 | 0.42 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.0 | 0.38 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.1 | 0.38 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.1 | 0.28 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.26 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.1 | 0.31 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.2 | 0.24 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.0 | 0.30 | ug/l | |

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-16D | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-6 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|--------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.1 | 0.44 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.0 | 0.36 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.1 | 0.27 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.1 | 0.35 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.1 | 0.29 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.1 | 0.28 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.0 | 0.27 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.0 | 0.33 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.1 | 0.55 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.0 | 0.38 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.2 | 0.28 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.81 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.1 | 0.30 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.25 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.1 | 0.32 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.1 | 0.79 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.0 | 0.24 | ug/l | |
| 86-73-7 | Fluorene | 0.49 | 1.0 | 0.30 | ug/l | J |
| 118-74-1 | Hexachlorobenzene | ND | 1.0 | 0.44 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.0 | 0.38 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 10 | 0.30 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.1 | 0.23 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.0 | 0.40 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.1 | 0.29 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | 3.4 | 1.0 | 0.30 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.2 | 0.22 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.2 | 0.25 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.2 | 0.35 | ug/l | |
| 91-20-3 | Naphthalene | 2.3 | 1.0 | 0.29 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.1 | 0.48 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.1 | 0.32 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.2 | 0.30 | ug/l | |
| 85-01-8 | Phenanthrene | 0.61 | 1.0 | 0.24 | ug/l | J |
| 129-00-0 | Pyrene | ND | 1.0 | 0.35 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.1 | 0.37 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 367-12-4 | 2-Fluorophenol | 55% | | 14-88% |
| 4165-62-2 | Phenol-d5 | 39% | | 10-110% |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-16D | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-6 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 118-79-6 | 2,4,6-Tribromophenol | 97% | | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 97% | | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 89% | | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 86% | | 10-126% |



ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|--------------------------------|------------------------|----------|
| Client Sample ID: | MW-16D | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-6 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D BY SIM SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15641.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 970 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | 2.31 | 0.10 | 0.014 | ug/l | |
| 123-91-1 | 1,4-Dioxane | 0.925 | 0.10 | 0.055 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 93% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 92% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 97% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

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| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-16D | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-6 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAI) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103826.D | 1 | 03/18/16 | XPL | n/a | n/a | GGH5213 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 98% | | 56-145% |
| 111-27-3 | Hexanol | 94% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 2

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | TB030902 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-7 | Date Received: | 03/11/16 |
| Matrix: | AQ - Trip Blank Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204159.D | 1 | 03/15/16 | NH | n/a | n/a | VU9383 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 1.0 | 0.19 | ug/l | |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 1.0 | 0.19 | ug/l | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | ND | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | TB030902 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-7 | Date Received: | 03/11/16 |
| Matrix: | AQ - Trip Blank Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | ND | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | ND | 1.0 | 0.17 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 105% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 108% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 100% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 103% | | 78-117% |



ND = Not detected MDL = Method Detection Limit
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SGS Accutest

Report of Analysis

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| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | TB030902 | Date Sampled: | 03/09/16 |
| Lab Sample ID: | JC16038-7 | Date Received: | 03/11/16 |
| Matrix: | AQ - Trip Blank Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAI) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103829.D | 1 | 03/18/16 | XPL | n/a | n/a | GGH5213 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 99% | | 56-145% |
| 111-27-3 | Hexanol | 91% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 2

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204162.D | 1 | 03/15/16 | NH | n/a | n/a | VU9383 |
| Run #2 | | | | | | | |

| | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 1.0 | 0.19 | ug/l | |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 1.0 | 0.19 | ug/l | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | ND | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |



ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | ND | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | ND | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | ND | 1.0 | 0.17 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 105% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 107% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 104% | | 78-117% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | P103411.D | 1 | 03/17/16 | SD | 03/15/16 | OP92078 | EP4545 |
| Run #2 | P103375.D | 40 | 03/16/16 | LK | 03/15/16 | OP92078 | EP4542 |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 990 ml | 1.0 ml |
| Run #2 | 990 ml | 1.0 ml |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.1 | 0.94 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.1 | 1.4 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.0 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.1 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.1 | 0.88 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 0.83 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 0.68 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.1 | 1.4 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.1 | 1.5 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.32 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.1 | 1.4 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.1 | 1.5 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.1 | 1.5 | ug/l | |
| 83-32-9 | Acenaphthene | ND | 1.0 | 0.29 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 1.0 | 0.24 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.0 | 0.28 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.0 | 0.25 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.0 | 0.42 | ug/l | |
| 100-52-7 | Benzaldehyde | 0.90 | 5.1 | 0.34 | ug/l | J |
| 56-55-3 | Benzo(a)anthracene | ND | 1.0 | 0.32 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.0 | 0.34 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.0 | 0.32 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.0 | 0.41 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.0 | 0.37 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.0 | 0.37 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.0 | 0.27 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.26 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.0 | 0.30 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.1 | 0.23 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.0 | 0.30 | ug/l | |

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|-------------------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.0 | 0.43 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.0 | 0.35 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.0 | 0.26 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.0 | 0.35 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.0 | 0.29 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.0 | 0.27 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.0 | 0.27 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.0 | 0.33 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.0 | 0.54 | ug/l | |
| 123-91-1 | 1,4-Dioxane | 2220 ^a | 40 | 29 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.0 | 0.37 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.1 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.79 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.0 | 0.29 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.25 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.0 | 0.32 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.0 | 0.78 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.0 | 0.23 | ug/l | |
| 86-73-7 | Fluorene | ND | 1.0 | 0.30 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.0 | 0.43 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.0 | 0.37 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 10 | 0.30 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.0 | 0.22 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.0 | 0.39 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.0 | 0.29 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.1 | 0.21 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.1 | 0.24 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.1 | 0.35 | ug/l | |
| 91-20-3 | Naphthalene | ND | 1.0 | 0.29 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.0 | 0.47 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.0 | 0.32 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.1 | 0.30 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.0 | 0.23 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.0 | 0.34 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.0 | 0.37 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|--------|
| 367-12-4 | 2-Fluorophenol | 67% | 61% | 14-88% |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|-------------------|---------|
| 4165-62-2 | Phenol-d5 | 45% | 34% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 105% | 55% | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 101% | 93% | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 95% | 120% ^b | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 96% | 84% | 10-126% |

(a) Result is from Run# 2

(b) Outside control limits due to dilution.



ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

| | | | |
|--------------------------|--------------------------------|------------------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D BY SIM SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15642.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 990 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 94% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 96% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 93% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAI) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103789.D | 1 | 03/17/16 | XPL | n/a | n/a | GGH5211 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 98% | | 56-145% |
| 111-27-3 | Hexanol | 90% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | S-30 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-8 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8081B SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4G66288.D | 1 | 03/20/16 | BP | 03/15/16 | OP92108 | G4G1744 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 10.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|----------|--------|-------|--------|-------|---|
| 319-85-7 | beta-BHC | ND | 0.010 | 0.0042 | ug/l | |
| 72-54-8 | 4,4'-DDD | ND | 0.010 | 0.0049 | ug/l | |
| 50-29-3 | 4,4'-DDT | ND | 0.010 | 0.0047 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 877-09-8 | Tetrachloro-m-xylene | 97% | | 26-132% |
| 877-09-8 | Tetrachloro-m-xylene | 99% | | 26-132% |
| 2051-24-3 | Decachlorobiphenyl | 101% | | 10-118% |
| 2051-24-3 | Decachlorobiphenyl | 103% | | 10-118% |



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 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 2

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | FB030816 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-9 | Date Received: | 03/11/16 |
| Matrix: | AQ - Field Blank Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204160.D | 1 | 03/15/16 | NH | n/a | n/a | VU9383 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | 0.30 | 1.0 | 0.19 | ug/l | J |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 1.0 | 0.19 | ug/l | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | ND | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |



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RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB030816
Lab Sample ID: JC16038-9
Matrix: AQ - Field Blank Water
Method: SW846 8260C
Project: BSMC, Building 5 Area, PR

Date Sampled: 03/08/16
Date Received: 03/11/16
Percent Solids: n/a

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | 0.91 | 1.0 | 0.23 | ug/l | J |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 4.5 | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | ND | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | ND | 1.0 | 0.17 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 105% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 107% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 103% | | 78-117% |



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 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | FB030816 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-9 | Date Received: | 03/11/16 |
| Matrix: | AQ - Field Blank Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | F155576.D | 1 | 03/15/16 | SD | 03/15/16 | OP92078 | EF6543 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.0 | 0.93 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.0 | 1.4 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.0 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.0 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.0 | 0.87 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.0 | 0.82 | ug/l | |
| | 3&4-Methylphenol | ND | 2.0 | 0.67 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.0 | 1.4 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 108-95-2 | Phenol | ND | 2.0 | 0.31 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.0 | 1.5 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.0 | 1.4 | ug/l | |
| 83-32-9 | Acenaphthene | ND | 1.0 | 0.29 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 1.0 | 0.24 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.0 | 0.28 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.0 | 0.25 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.0 | 0.42 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.0 | 0.34 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.0 | 0.32 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.0 | 0.33 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.0 | 0.32 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.0 | 0.41 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.0 | 0.37 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.0 | 0.37 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.0 | 0.27 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.26 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.0 | 0.30 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.0 | 0.23 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.0 | 0.29 | ug/l | |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB030816
 Lab Sample ID: JC16038-9
 Matrix: AQ - Field Blank Water
 Method: SW846 8270D SW846 3510C
 Project: BMSMC, Building 5 Area, PR

Date Sampled: 03/08/16
 Date Received: 03/11/16
 Percent Solids: n/a

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|--------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.0 | 0.43 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.0 | 0.35 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.0 | 0.26 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.0 | 0.34 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.0 | 0.28 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.0 | 0.27 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.0 | 0.26 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.0 | 0.32 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.0 | 0.53 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.0 | 0.37 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.0 | 0.27 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.0 | 0.79 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.0 | 0.29 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.0 | 0.24 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.0 | 0.31 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 1.2 | 2.0 | 0.77 | ug/l | J |
| 206-44-0 | Fluoranthene | ND | 1.0 | 0.23 | ug/l | |
| 86-73-7 | Fluorene | ND | 1.0 | 0.29 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.0 | 0.42 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.0 | 0.36 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 10 | 0.29 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.0 | 0.22 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.0 | 0.38 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.0 | 0.29 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.29 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.0 | 0.21 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.0 | 0.24 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.0 | 0.34 | ug/l | |
| 91-20-3 | Naphthalene | ND | 1.0 | 0.28 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.0 | 0.46 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.0 | 0.31 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.0 | 0.29 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.0 | 0.23 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.0 | 0.34 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.0 | 0.36 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 367-12-4 | 2-Fluorophenol | 51% | | 14-88% |
| 4165-62-2 | Phenol-d5 | 36% | | 10-110% |

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | |
|---|--------------------------------|
| Client Sample ID: FB030816 | Date Sampled: 03/08/16 |
| Lab Sample ID: JC16038-9 | Date Received: 03/11/16 |
| Matrix: AQ - Field Blank Water | Percent Solids: n/a |
| Method: SW846 8270D SW846 3510C | |
| Project: BSMC, Building 5 Area, PR | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 118-79-6 | 2,4,6-Tribromophenol | 87% | | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 90% | | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 83% | | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 83% | | 10-126% |



ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

| | | | |
|--------------------------|--------------------------------|------------------------|----------|
| Client Sample ID: | FB030816 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-9 | Date Received: | 03/11/16 |
| Matrix: | AQ - Field Blank Water | Percent Solids: | n/a |
| Method: | SW846 8270D BY SIM SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15643.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | ND | 0.10 | 0.013 | ug/l | |
| 123-91-1 | 1,4-Dioxane | ND | 0.10 | 0.053 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 90% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 96% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 92% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | FB030816 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-9 | Date Received: | 03/11/16 |
| Matrix: | AQ - Field Blank Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAI) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103799.D | 1 | 03/17/16 | XPL | n/a | n/a | GGH5211 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 102% | | 56-145% |
| 111-27-3 | Hexanol | 90% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | FB030816 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-9 | Date Received: | 03/11/16 |
| Matrix: | AQ - Field Blank Water | Percent Solids: | n/a |
| Method: | SW846 8081B SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4G66287.D | 1 | 03/20/16 | BP | 03/15/16 | OP92108 | G4G1744 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 1000 ml | 10.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|----------|--------|-------|--------|-------|---|
| 319-85-7 | beta-BHC | ND | 0.010 | 0.0042 | ug/l | |
| 72-54-8 | 4,4'-DDD | ND | 0.010 | 0.0049 | ug/l | |
| 50-29-3 | 4,4'-DDT | ND | 0.010 | 0.0047 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 877-09-8 | Tetrachloro-m-xylene | 78% | | 26-132% |
| 877-09-8 | Tetrachloro-m-xylene | 86% | | 26-132% |
| 2051-24-3 | Decachlorobiphenyl | 67% | | 10-118% |
| 2051-24-3 | Decachlorobiphenyl | 73% | | 10-118% |



ND = Not detected MDL = Method Detection Limit
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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 2

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-11 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-10 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | U204163.D | 1 | 03/16/16 | NH | n/a | n/a | VU9383 |
| Run #2 | | | | | | | |

| Run # | Purge Volume |
|--------|--------------|
| Run #1 | 5.0 ml |
| Run #2 | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|------------|-----------------------------|--------|------|------|-------|---|
| 67-64-1 | Acetone | ND | 10 | 3.3 | ug/l | |
| 71-43-2 | Benzene | ND | 0.50 | 0.24 | ug/l | |
| 74-97-5 | Bromochloromethane | ND | 1.0 | 0.37 | ug/l | |
| 75-27-4 | Bromodichloromethane | ND | 1.0 | 0.23 | ug/l | |
| 75-25-2 | Bromoform | ND | 1.0 | 0.23 | ug/l | |
| 74-83-9 | Bromomethane | ND | 2.0 | 0.42 | ug/l | |
| 78-93-3 | 2-Butanone (MEK) | ND | 10 | 5.6 | ug/l | |
| 75-15-0 | Carbon disulfide | ND | 2.0 | 0.25 | ug/l | |
| 56-23-5 | Carbon tetrachloride | ND | 1.0 | 0.22 | ug/l | |
| 108-90-7 | Chlorobenzene | ND | 1.0 | 0.19 | ug/l | |
| 75-00-3 | Chloroethane | ND | 1.0 | 0.34 | ug/l | |
| 67-66-3 | Chloroform | ND | 1.0 | 0.19 | ug/l | |
| 74-87-3 | Chloromethane | ND | 1.0 | 0.41 | ug/l | |
| 110-82-7 | Cyclohexane | ND | 5.0 | 0.28 | ug/l | |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | ND | 2.0 | 0.99 | ug/l | |
| 124-48-1 | Dibromochloromethane | ND | 1.0 | 0.15 | ug/l | |
| 106-93-4 | 1,2-Dibromoethane | ND | 1.0 | 0.23 | ug/l | |
| 95-50-1 | 1,2-Dichlorobenzene | ND | 1.0 | 0.19 | ug/l | |
| 541-73-1 | 1,3-Dichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 106-46-7 | 1,4-Dichlorobenzene | ND | 1.0 | 0.27 | ug/l | |
| 75-71-8 | Dichlorodifluoromethane | ND | 2.0 | 0.90 | ug/l | |
| 75-34-3 | 1,1-Dichloroethane | ND | 1.0 | 0.17 | ug/l | |
| 107-06-2 | 1,2-Dichloroethane | ND | 1.0 | 0.18 | ug/l | |
| 75-35-4 | 1,1-Dichloroethene | ND | 1.0 | 0.51 | ug/l | |
| 156-59-2 | cis-1,2-Dichloroethene | ND | 1.0 | 0.27 | ug/l | |
| 156-60-5 | trans-1,2-Dichloroethene | ND | 1.0 | 0.65 | ug/l | |
| 78-87-5 | 1,2-Dichloropropane | ND | 1.0 | 0.39 | ug/l | |
| 10061-01-5 | cis-1,3-Dichloropropene | ND | 1.0 | 0.21 | ug/l | |
| 10061-02-6 | trans-1,3-Dichloropropene | ND | 1.0 | 0.19 | ug/l | |
| 100-41-4 | Ethylbenzene | ND | 1.0 | 0.27 | ug/l | |
| 76-13-1 | Freon 113 | ND | 5.0 | 0.52 | ug/l | |
| 591-78-6 | 2-Hexanone | ND | 5.0 | 1.7 | ug/l | |



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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-11 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-10 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8260C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

VOA TCL List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 98-82-8 | Isopropylbenzene | ND | 1.0 | 0.23 | ug/l | |
| 79-20-9 | Methyl Acetate | ND | 5.0 | 1.9 | ug/l | |
| 108-87-2 | Methylcyclohexane | ND | 5.0 | 0.22 | ug/l | |
| 1634-04-4 | Methyl Tert Butyl Ether | 1.9 | 1.0 | 0.24 | ug/l | |
| 108-10-1 | 4-Methyl-2-pentanone(MIBK) | ND | 5.0 | 1.0 | ug/l | |
| 75-09-2 | Methylene chloride | ND | 2.0 | 0.73 | ug/l | |
| 100-42-5 | Styrene | ND | 1.0 | 0.27 | ug/l | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | ND | 1.0 | 0.21 | ug/l | |
| 127-18-4 | Tetrachloroethene | ND | 1.0 | 0.40 | ug/l | |
| 108-88-3 | Toluene | ND | 1.0 | 0.16 | ug/l | |
| 87-61-6 | 1,2,3-Trichlorobenzene | ND | 1.0 | 0.23 | ug/l | |
| 120-82-1 | 1,2,4-Trichlorobenzene | ND | 1.0 | 0.21 | ug/l | |
| 71-55-6 | 1,1,1-Trichloroethane | ND | 1.0 | 0.25 | ug/l | |
| 79-00-5 | 1,1,2-Trichloroethane | ND | 1.0 | 0.21 | ug/l | |
| 79-01-6 | Trichloroethene | ND | 1.0 | 0.22 | ug/l | |
| 75-69-4 | Trichlorofluoromethane | ND | 2.0 | 0.43 | ug/l | |
| 75-01-4 | Vinyl chloride | ND | 1.0 | 0.15 | ug/l | |
| | m,p-Xylene | ND | 1.0 | 0.38 | ug/l | |
| 95-47-6 | o-Xylene | ND | 1.0 | 0.17 | ug/l | |
| 1330-20-7 | Xylene (total) | ND | 1.0 | 0.17 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|------------|-----------------------|--------|--------|---------|
| 1868-53-7 | Dibromofluoromethane | 104% | | 76-120% |
| 17060-07-0 | 1,2-Dichloroethane-D4 | 107% | | 73-122% |
| 2037-26-5 | Toluene-D8 | 99% | | 84-119% |
| 460-00-4 | 4-Bromofluorobenzene | 103% | | 78-117% |



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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-11 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-10 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | P103372.D | 1 | 03/16/16 | LK | 03/15/16 | OP92078 | EP4542 |
| Run #2 | P103374.D | 5 | 03/16/16 | LK | 03/15/16 | OP92078 | EP4542 |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 970 ml | 1.0 ml |
| Run #2 | 970 ml | 1.0 ml |

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|----------------------------|--------|-----|------|-------|---|
| 95-57-8 | 2-Chlorophenol | ND | 5.2 | 0.96 | ug/l | |
| 59-50-7 | 4-Chloro-3-methyl phenol | ND | 5.2 | 1.4 | ug/l | |
| 120-83-2 | 2,4-Dichlorophenol | ND | 2.1 | 1.3 | ug/l | |
| 105-67-9 | 2,4-Dimethylphenol | ND | 5.2 | 1.3 | ug/l | |
| 51-28-5 | 2,4-Dinitrophenol | ND | 10 | 1.1 | ug/l | |
| 534-52-1 | 4,6-Dinitro-o-cresol | ND | 5.2 | 0.90 | ug/l | |
| 95-48-7 | 2-Methylphenol | ND | 2.1 | 0.84 | ug/l | |
| | 3&4-Methylphenol | ND | 2.1 | 0.69 | ug/l | |
| 88-75-5 | 2-Nitrophenol | ND | 5.2 | 1.5 | ug/l | |
| 100-02-7 | 4-Nitrophenol | ND | 10 | 1.1 | ug/l | |
| 87-86-5 | Pentachlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 108-95-2 | Phenol | ND | 2.1 | 0.32 | ug/l | |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 95-95-4 | 2,4,5-Trichlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 88-06-2 | 2,4,6-Trichlorophenol | ND | 5.2 | 1.5 | ug/l | |
| 83-32-9 | Acenaphthene | ND | 1.0 | 0.29 | ug/l | |
| 208-96-8 | Acenaphthylene | ND | 1.0 | 0.25 | ug/l | |
| 98-86-2 | Acetophenone | ND | 2.1 | 0.28 | ug/l | |
| 120-12-7 | Anthracene | ND | 1.0 | 0.25 | ug/l | |
| 1912-24-9 | Atrazine | ND | 2.1 | 0.43 | ug/l | |
| 100-52-7 | Benzaldehyde | ND | 5.2 | 0.35 | ug/l | |
| 56-55-3 | Benzo(a)anthracene | ND | 1.0 | 0.32 | ug/l | |
| 50-32-8 | Benzo(a)pyrene | ND | 1.0 | 0.34 | ug/l | |
| 205-99-2 | Benzo(b)fluoranthene | ND | 1.0 | 0.33 | ug/l | |
| 191-24-2 | Benzo(g,h,i)perylene | ND | 1.0 | 0.42 | ug/l | |
| 207-08-9 | Benzo(k)fluoranthene | ND | 1.0 | 0.38 | ug/l | |
| 101-55-3 | 4-Bromophenyl phenyl ether | ND | 2.1 | 0.38 | ug/l | |
| 85-68-7 | Butyl benzyl phthalate | ND | 2.1 | 0.28 | ug/l | |
| 92-52-4 | 1,1'-Biphenyl | ND | 1.0 | 0.26 | ug/l | |
| 91-58-7 | 2-Chloronaphthalene | ND | 2.1 | 0.31 | ug/l | |
| 106-47-8 | 4-Chloroaniline | ND | 5.2 | 0.24 | ug/l | |
| 86-74-8 | Carbazole | ND | 1.0 | 0.30 | ug/l | |



ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-11
 Lab Sample ID: JC16038-10
 Matrix: AQ - Ground Water
 Method: SW846 8270D SW846 3510C
 Project: BMSMC, Building 5 Area, PR

Date Sampled: 03/08/16
 Date Received: 03/11/16
 Percent Solids: n/a

AEN TCL List (SOM0 1.1)

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|-----------|-----------------------------|------------------|-----|------|-------|---|
| 105-60-2 | Caprolactam | ND | 2.1 | 0.44 | ug/l | |
| 218-01-9 | Chrysene | ND | 1.0 | 0.36 | ug/l | |
| 111-91-1 | bis(2-Chloroethoxy)methane | ND | 2.1 | 0.27 | ug/l | |
| 111-44-4 | bis(2-Chloroethyl)ether | ND | 2.1 | 0.35 | ug/l | |
| 108-60-1 | bis(2-Chloroisopropyl)ether | ND | 2.1 | 0.29 | ug/l | |
| 7005-72-3 | 4-Chlorophenyl phenyl ether | ND | 2.1 | 0.28 | ug/l | |
| 121-14-2 | 2,4-Dinitrotoluene | ND | 1.0 | 0.27 | ug/l | |
| 606-20-2 | 2,6-Dinitrotoluene | ND | 1.0 | 0.33 | ug/l | |
| 91-94-1 | 3,3'-Dichlorobenzidine | ND | 2.1 | 0.55 | ug/l | |
| 123-91-1 | 1,4-Dioxane | 385 ^a | 5.2 | 3.7 | ug/l | |
| 53-70-3 | Dibenzo(a,h)anthracene | ND | 1.0 | 0.38 | ug/l | |
| 132-64-9 | Dibenzofuran | ND | 5.2 | 0.28 | ug/l | |
| 84-74-2 | Di-n-butyl phthalate | ND | 2.1 | 0.81 | ug/l | |
| 117-84-0 | Di-n-octyl phthalate | ND | 2.1 | 0.30 | ug/l | |
| 84-66-2 | Diethyl phthalate | ND | 2.1 | 0.25 | ug/l | |
| 131-11-3 | Dimethyl phthalate | ND | 2.1 | 0.32 | ug/l | |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | ND | 2.1 | 0.79 | ug/l | |
| 206-44-0 | Fluoranthene | ND | 1.0 | 0.24 | ug/l | |
| 86-73-7 | Fluorene | ND | 1.0 | 0.30 | ug/l | |
| 118-74-1 | Hexachlorobenzene | ND | 1.0 | 0.44 | ug/l | |
| 87-68-3 | Hexachlorobutadiene | ND | 1.0 | 0.38 | ug/l | |
| 77-47-4 | Hexachlorocyclopentadiene | ND | 10 | 0.30 | ug/l | |
| 67-72-1 | Hexachloroethane | ND | 2.1 | 0.23 | ug/l | |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | ND | 1.0 | 0.40 | ug/l | |
| 78-59-1 | Isophorone | ND | 2.1 | 0.29 | ug/l | |
| 91-57-6 | 2-Methylnaphthalene | ND | 1.0 | 0.30 | ug/l | |
| 88-74-4 | 2-Nitroaniline | ND | 5.2 | 0.22 | ug/l | |
| 99-09-2 | 3-Nitroaniline | ND | 5.2 | 0.25 | ug/l | |
| 100-01-6 | 4-Nitroaniline | ND | 5.2 | 0.35 | ug/l | |
| 91-20-3 | Naphthalene | ND | 1.0 | 0.29 | ug/l | |
| 98-95-3 | Nitrobenzene | ND | 2.1 | 0.48 | ug/l | |
| 621-64-7 | N-Nitroso-di-n-propylamine | ND | 2.1 | 0.32 | ug/l | |
| 86-30-6 | N-Nitrosodiphenylamine | ND | 5.2 | 0.30 | ug/l | |
| 85-01-8 | Phenanthrene | ND | 1.0 | 0.24 | ug/l | |
| 129-00-0 | Pyrene | ND | 1.0 | 0.35 | ug/l | |
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | ND | 2.1 | 0.37 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|--------|
| 367-12-4 | 2-Fluorophenol | 65% | 63% | 14-88% |

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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



Report of Analysis

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-11 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-10 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

ABN TCL List (SOM0 1.1)

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-62-2 | Phenol-d5 | 46% | 46% | 10-110% |
| 118-79-6 | 2,4,6-Tribromophenol | 99% | 90% | 39-149% |
| 4165-60-0 | Nitrobenzene-d5 | 97% | 104% | 32-128% |
| 321-60-8 | 2-Fluorobiphenyl | 95% | 113% | 35-119% |
| 1718-51-0 | Terphenyl-d14 | 93% | 99% | 10-126% |

(a) Result is from Run# 2



ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|--------------------------------|------------------------|----------|
| Client Sample ID: | MW-11 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-10 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8270D BY SIM SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4P15644.D | 1 | 03/17/16 | JJ | 03/15/16 | OP92078A | E4P804 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 970 ml | 1.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------|--------|------|-------|-------|---|
| 91-20-3 | Naphthalene | ND | 0.10 | 0.014 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 4165-60-0 | Nitrobenzene-d5 | 110% | | 24-125% |
| 321-60-8 | 2-Fluorobiphenyl | 115% | | 19-127% |
| 1718-51-0 | Terphenyl-d14 | 111% | | 10-119% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

| | | | |
|-------------------|----------------------------|-----------------|----------|
| Client Sample ID: | MW-11 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-10 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846-8015C (DAI) | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|------------|----|----------|-----|-----------|------------|------------------|
| Run #1 | GH103788.D | 1 | 03/17/16 | XPL | n/a | n/a | GGH5211 |
| Run #2 | | | | | | | |

Low Molecular Alcohol List

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---------|-------------------|--------|-----|-----|-------|---|
| 64-17-5 | Ethanol | ND | 100 | 55 | ug/l | |
| 78-83-1 | Isobutyl Alcohol | ND | 100 | 36 | ug/l | |
| 67-63-0 | Isopropyl Alcohol | ND | 100 | 68 | ug/l | |
| 71-23-8 | n-Propyl Alcohol | ND | 100 | 43 | ug/l | |
| 71-36-3 | n-Butyl Alcohol | ND | 100 | 87 | ug/l | |
| 78-92-2 | sec-Butyl Alcohol | ND | 100 | 66 | ug/l | |
| 67-56-1 | Methanol | ND | 200 | 71 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|----------|----------------------|--------|--------|---------|
| 111-27-3 | Hexanol | 95% | | 56-145% |
| 111-27-3 | Hexanol | 85% | | 56-145% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

| | | | |
|--------------------------|----------------------------|------------------------|----------|
| Client Sample ID: | MW-11 | Date Sampled: | 03/08/16 |
| Lab Sample ID: | JC16038-10 | Date Received: | 03/11/16 |
| Matrix: | AQ - Ground Water | Percent Solids: | n/a |
| Method: | SW846 8081B SW846 3510C | | |
| Project: | BMSMC, Building 5 Area, PR | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|-----------|----|----------|----|-----------|------------|------------------|
| Run #1 | 4G66289.D | 1 | 03/20/16 | BP | 03/15/16 | OP92108 | G4G1744 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 940 ml | 10.0 ml |
| Run #2 | | |

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|----------|----------|--------|-------|--------|-------|---|
| 319-85-7 | beta-BHC | ND | 0.011 | 0.0045 | ug/l | |
| 72-54-8 | 4,4'-DDD | ND | 0.011 | 0.0052 | ug/l | |
| 50-29-3 | 4,4'-DDT | ND | 0.011 | 0.0050 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|-----------|----------------------|--------|--------|---------|
| 877-09-8 | Tetrachloro-m-xylene | 69% | | 26-132% |
| 877-09-8 | Tetrachloro-m-xylene | 76% | | 26-132% |
| 2051-24-3 | Decachlorobiphenyl | 72% | | 10-118% |
| 2051-24-3 | Decachlorobiphenyl | 81% | | 10-118% |



ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

CHAIN OF CUSTODY

Fresh Ponds Corporate Village, Building B
2235 Route 130, Dayton, NJ 08810
732-329-0200 FAX: 732-329-1499/3480

Account Job #: JC16038
Account Quote #:

| Client Information | | | | Facility Information | | | | Analytical Information | | | | | | | | | | | | | |
|--|--------|-------------------------------|--------|--|----|--------------------------------|-----|---|-----|--------------------------------|-------------|--------------------------|-----------------|--------------------------------|--|--------------------------|-----|--|--|--|--|
| Anderson Mulholland & Associates | | | | Anderson Mulholland | | | | | | | | | | | | | | | | | |
| Name 2700 Westchester Avenue | | | | Project Name | | | | | | | | | | | | | | | | | |
| Address Purchase NY 10577 | | | | Location | | | | | | | | | | | | | | | | | |
| City State Zip Terry Taylor | | | | Project/PO #: BMS: Former Tank Farm | | | | | | | | | | | | | | | | | |
| Send Report to: Phone #: 914-251-0400 | | | | FAX #: 914-251-1286 | | | | | | | | | | | | | | | | | |
| Field ID / Point of Collection | | Collection | | Matrix | | # of bottles | | Preservation | | | | | | | | | | | | | |
| Date | Time | Sampled By | Matrix | # of bottles | CL | NOH | NOH | NOH | NOH | VOCs, 8260C | SVOC, 8270D | Volatile Alcohols, 8015B | SVOC, 8270D SIM | 4404 QC | | | | | | | |
| MW-13 | 3/9/16 | 946 | NMR | GW | 8 | X | | | | X | X | X | X | X | | 1 | E19 | | | | |
| MW-7 | | 1119 | | GW | 8 | X | | | | X | X | X | X | X | | 2 | V71 | | | | |
| MW-3 | | 1241 | | GW | 8 | X | | | | X | X | X | X | X | | 3 | | | | | |
| MW-5 | | 1529 | | GW | 8 | X | | | | X | X | X | X | X | | 4 | | | | | |
| MW-16 | | 1847 | | GW | 8 | X | | | | X | X | X | X | X | | 5 | | | | | |
| MW-16.D | 3/9/16 | 1902 | NMR | GW | 8 | X | | | | X | X | X | X | X | | 6 | | | | | |
| MW- | | | | GW | 8 | X | | | | X | X | X | X | X | | | | | | | |
| MW- | | | | GW | 8 | X | | | | X | X | X | X | X | | | | | | | |
| MW- | | | | GW | 8 | X | | | | X | X | X | X | X | | | | | | | |
| TB030902 | 3/9/16 | 1902 | NMR | W | 4 | X | | | | X | | X | | | | 7 | | | | | |
| Turnaround Information | | | | Data Deliverable Information | | | | Comments / Remarks | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> 21 Day Standard <input type="checkbox"/> 14 Day <input type="checkbox"/> 7 Days EMERGENCY <input type="checkbox"/> Other (Days) RUSH TAT is for FAX data unless previously approved. | | | | Approved By: _____ <input type="checkbox"/> NJ Reduced <input checked="" type="checkbox"/> NJ Full <input type="checkbox"/> FULL CLP <input type="checkbox"/> Data Deliverable <input type="checkbox"/> Other (Specify) | | | | <input type="checkbox"/> Commercial "A" <input type="checkbox"/> Commercial "B" <input type="checkbox"/> ASP Category B <input type="checkbox"/> State Forms | | | | | | | | | | | | | |
| Federal Express ID # <u>8012 1953 5581</u> Lab Trip Blank Date <u>2/27/16</u> Time <u>1000</u> SVOC Analysis by Method 8270D SIM for 1,4 Dioxane and Naphthalene only. | | | | | | | | | | | | | | | | | | | | | |
| Sample Custody must be documented below each time samples change possession, including courier delivery. | | | | | | | | | | | | | | | | | | | | | |
| Received By: <u>John M. Kline</u> | | Date Time: <u>3/9/16 1433</u> | | Received By: <u>Felix</u> | | Date Time: <u>3/11/16 1015</u> | | Received By: <u>John</u> | | Date Time: <u>3/11/16 1015</u> | | Received By: <u>John</u> | | Date Time: <u>3/11/16 1015</u> | | Received By: <u>John</u> | | | | | |
| 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | | | | |
| 160 162 164 | | yes | | yes | | yes | | yes | | yes | | yes | | yes | | yes | | | | | |

Felix # 7758 4461 1366, 1355, / 8012 1955 581

2.3 &
2.7 &
3.2

**Fresh Ponds Corporate Village, Building B
2235 Route 130, Dayton, NJ 08810
732-329-0200 FAX: 732-329-3499/3480**

Accutest Job #: 1C16038

| Client Information | | | | | | Facility Information | | | | | | Analytical Information | | | | | | | | | | |
|---|--|------------|------|------------|--------|--|--------------|------|-----|-----|-------------|------------------------|--------------------------|---------------------------|-----------------|--|--|--|--|--|--|------|
| Anderson Mulholland & Associates | | | | | | Anderson Mulholland and Associates Inc. | | | | | | | | | | | | | | | | |
| Name 2700 Westchester Avenue | | | | | | Project Name | | | | | | | | | | | | | | | | |
| Address Purchase NY 10577 | | | | | | Location | | | | | | | | | | | | | | | | |
| City State Zip | | | | | | Project/PO #: | | | | | | | | | | | | | | | | |
| Terry Taylor | | | | | | SMS: Building 5 Area | | | | | | | | | | | | | | | | |
| Send Report to: Phone #: 914-251-0400 | | | | | | FAX #: 914-251-1288 | | | | | | | | | | | | | | | | |
| Field ID / Point of Collection | | Collection | | Sampled By | Matrix | # of bottles | Preservation | | | | VOCs, 8260C | SVOC, 8270D | Volatile Alcohols, 8015B | Organic Pesticides, 8081B | SVOC, 8270D SIM | | | | | | | |
| | | Date | Time | | | | KCl | Hach | PAC | KOH | | | | | | | | | | | | None |
| S-3D | | 3/8/16 | 1427 | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| FB030816 | | 3/8/16 | 1430 | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| MW-11 | | 3/8/16 | 1808 | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | X | X | X | | | | | | | |
| | | | | NMR | GW | 10 | X | | | | X | X | | | | | | | | | | |

Page 2 of 4

EXECUTIVE NARRATIVE

SDG No: **JC16038** Laboratory: **Accutest, New Jersey**
Analysis: **SW846-8260C** Number of Samples: **10**
Location: **BMSMC, Building 5 Area**
Humacao, PR

SUMMARY: Eight (8) groundwater samples, one field blank, and one trip blank were analyzed for the VOA TCL list following method SW846-8260C. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence *Hazardous Waste Support Section SOP No. HW-33A, Revision 0, June, 2015. SOM02.2. Low/Medium Volatile Data Validation*. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

Results are valid and can be used for decision making purposes.

Critical issues: None
Major: None
Minor: 1. Initial calibration and initial calibration verification within the required criteria. Continuing calibration for Freon 113 (- 28% D) and Acetone (-33.3 % D) outside method performance criteria but within guidance document criteria. Closing calibration check verification not included in data package. No action taken, professional judgment.
2. Target analytes (chlorobenzene, isopropyl benzene, and MTBE) found in field blank. No action taken.
3. MS/MSD % recoveries outside laboratory control limits for sample JC16250-14MS/-14MSD. No action taken, sample concentration high compared to amount spiked.

Critical findings: None
Major findings: None
Minor findings: None

COMMENTS: Results are valid and can be used for decision making purposes.

Reviewers Name: Rafael Infante
Chemist License 1888

Signature:



Date: April 16, 2016

SAMPLE ORGANIC DATA SAMPLE SUMMARY

Sample ID: JC16038-1

Sample location: BMSMC Building 5 Area

Sampling date: 3/9/2016

Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.5 | ug/L | 1.0 | - | U | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 0.28 | ug/L | 1.0 | J | UJ | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 0.90 | ug/L | 1.0 | J | UJ | Yes |
| 1,3-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,4-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Freon 113 | 1.0 | ug/L | 1.0 | - | U | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 1.0 | ug/L | 1.0 | - | U | Yes |
| 4-Methyl-2-pentanone(MIBK) | 2.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 10 | ug/L | 1.0 | - | U | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 2.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| o-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Xylene (total) | 1.0 | ug/L | 1.0 | - | U | Yes |

Sample ID: JC16038-2
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.5 | ug/L | 1.0 | - | U | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 1.4 | ug/L | 1.0 | - | - | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 7.3 | ug/L | 1.0 | - | - | Yes |
| 1,3-Dichlorobenzene | 0.30 | ug/L | 1.0 | J | UJ | Yes |
| 1,4-Dichlorobenzene | 1.1 | ug/L | 1.0 | - | - | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.4 | ug/L | 1.0 | - | - | Yes |

| | | | | | | |
|----------------------------|------|------|-----|---|----|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1.7 | ug/L | 1.0 | - | - | Yes |
| Freon 113 | 1.0 | ug/L | 1.0 | - | U | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 52.1 | ug/L | 1.0 | - | - | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 0.56 | ug/L | 1.0 | J | UJ | Yes |
| 4-Methyl-2-pentanone(MIBK) | 2.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 10 | ug/L | 1.0 | - | U | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 0.66 | ug/L | 1.0 | J | UJ | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 2.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 5.8 | ug/L | 1.0 | - | - | Yes |
| o-Xylene | 0.50 | ug/L | 1.0 | J | UJ | Yes |
| Xylene (total) | 6.3 | ug/L | 1.0 | - | - | Yes |

Sample ID: JC16038-3
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.32 | ug/L | 1.0 | J | UJ | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 0.36 | ug/L | 1.0 | J | UJ | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 4.0 | ug/L | 1.0 | J | UJ | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 0.27 | ug/L | 1.0 | J | UJ | Yes |
| 1,3-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,4-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |

| | | | | | | |
|----------------------------|------|------|-----|---|----|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 0.45 | ug/L | 1.0 | J | UJ | Yes |
| Freon 113 | 1.0 | ug/L | 1.0 | - | U | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 18.6 | ug/L | 1.0 | - | - | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 4.9 | ug/L | 1.0 | J | UJ | Yes |
| Methyl Tert Butyl Ether | 1.0 | ug/L | 1.0 | - | U | Yes |
| 4-Methyl-2-pentanone(MIBK) | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 10 | ug/L | 1.0 | - | U | Yes |
| Toluene | 0.42 | ug/L | 1.0 | J | UJ | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 0.83 | ug/L | 1.0 | J | UJ | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 0.61 | ug/L | 1.0 | J | UJ | Yes |
| o-Xylene | 0.98 | ug/L | 1.0 | J | UJ | Yes |
| Xylene (total) | 1.6 | ug/L | 1.0 | - | - | Yes |

Sample ID: JC16038-4
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 7.4 | ug/L | 1.0 | - | - | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 0.36 | ug/L | 1.0 | J | UJ | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 0.48 | ug/L | 1.0 | J | UJ | Yes |
| 1,3-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,4-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |

| | | | | | | |
|----------------------------|------|------|-----|---|----|-----|
| cis-1,2-Dichloroethene | 0.29 | ug/L | 1.0 | J | UJ | Yes |
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1040 | ug/L | 20 | - | - | Yes |
| Freon 113 | 1.0 | ug/L | 1.0 | - | U | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 20.8 | ug/L | 1.0 | - | - | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 11.8 | ug/L | 1.0 | - | - | Yes |
| 4-Methyl-2-pentanone(MIBK) | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 11.2 | ug/L | 1.0 | - | U | Yes |
| Toluene | 0.25 | ug/L | 1.0 | J | UJ | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 2480 | ug/L | 1.0 | - | - | Yes |
| o-Xylene | 0.42 | ug/L | 1.0 | J | UJ | Yes |
| Xylene (total) | 2480 | ug/L | 1.0 | - | - | Yes |

Sample ID: JC16038-5
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.50 | ug/L | 1.0 | - | U | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 0.34 | ug/L | 1.0 | J | UJ | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 12.2 | ug/L | 1.0 | - | - | Yes |
| 1,3-Dichlorobenzene | 0.49 | ug/L | 1.0 | J | UJ | Yes |
| 1,4-Dichlorobenzene | 2.5 | ug/L | 1.0 | - | - | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |

| | | | | | | |
|----------------------------|------|------|-----|---|---|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Freon 113 | 58.5 | ug/L | 1.0 | - | - | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 1.0 | ug/L | 1.0 | - | U | Yes |
| 4-Methyl-2-pentanone(MIBK) | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 10 | ug/L | 1.0 | - | U | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| o-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Xylene (total) | 1.0 | ug/L | 1.0 | - | U | Yes |

Sample ID: JC16038-6
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.50 | ug/L | 1.0 | - | U | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 0.34 | ug/L | 1.0 | J | UJ | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 12.7 | ug/L | 1.0 | - | U | Yes |
| 1,3-Dichlorobenzene | 0.46 | ug/L | 1.0 | J | UJ | Yes |
| 1,4-Dichlorobenzene | 2.5 | ug/L | 1.0 | - | U | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |

| | | | | | | |
|----------------------------|------|------|-----|---|---|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Freon 113 | 44.0 | ug/L | 1.0 | - | - | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 5.0 | ug/L | 1.0 | - | U | Yes |
| 4-Methyl-2-pentanone(MIBK) | 2.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 10 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 1.0 | ug/L | 1.0 | - | U | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 2.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| o-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Xylene (total) | 1.0 | ug/L | 1.0 | - | U | Yes |

Sample ID: JC16038-7
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | - | Yes |
| Benzene | 0.50 | ug/L | 1.0 | - | - | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | - | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | - | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | - | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | - | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | - | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | - | Yes |
| Chlorobenzene | 0.34 | ug/L | 1.0 | - | - | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | - | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | - | Yes |
| Cyclohexane | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | - | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,3-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,4-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | - | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | - | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | - | Yes |

| | | | | | | |
|----------------------------|-----|------|-----|---|---|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | - | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | - | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | - | Yes |
| Ethylbenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| Freon 113 | 5.0 | ug/L | 1.0 | - | - | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | - | Yes |
| Isopropylbenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | - | Yes |
| Methylcyclohexane | 1.0 | ug/L | 1.0 | - | - | Yes |
| Methyl Tert Butyl Ether | 5.0 | ug/L | 1.0 | - | - | Yes |
| 4-Methyl-2-pentanone(MIBK) | 2.0 | ug/L | 1.0 | - | - | Yes |
| Methylene chloride | 1.0 | ug/L | 1.0 | - | - | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| Tetrachloroethene | 10 | ug/L | 1.0 | - | - | Yes |
| Tetrahydrofuran | 1.0 | ug/L | 1.0 | - | - | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| Trichloroethene | 2.0 | ug/L | 1.0 | - | - | Yes |
| Trichlorofluoromethane | 1.0 | ug/L | 1.0 | - | - | Yes |
| 1,2,4-Trimethylbenzene | 1.0 | ug/L | 1.0 | - | - | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | - | Yes |
| m,p-Xylene | 1.0 | ug/L | 1.0 | - | - | Yes |
| o-Xylene | 1.0 | ug/L | 1.0 | - | - | Yes |
| Xylene (total) | 1.0 | ug/L | 1.0 | - | - | Yes |

Sample ID: JC16038-8
Sample location: BMSMC Building 5 Area
Sampling date: 3/8/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.50 | ug/L | 1.0 | - | U | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,3-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,4-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |

| | | | | | | |
|----------------------------|-----|------|-----|---|---|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Freon 113 | 1.0 | ug/L | 1.0 | - | U | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| p-Isopropyltoluene | 2.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 2.1 | ug/L | 1.0 | - | - | Yes |
| 4-Methyl-2-pentanone(MIBK) | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 10 | ug/L | 1.0 | - | U | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| o-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Xylene (total) | 1.0 | ug/L | 1.0 | - | U | Yes |

Sample ID: JC16038-9
Sample location: BMSMC Building 5 Area
Sampling date: 3/8/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.50 | ug/L | 1.0 | - | U | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 0.30 | ug/L | 1.0 | J | UJ | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,3-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,4-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |

| | | | | | | |
|----------------------------|------|------|-----|---|----|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Freon 113 | 1.0 | ug/L | 1.0 | - | U | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 0.91 | ug/L | 1.0 | J | UJ | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 4.5 | ug/L | 1.0 | - | - | Yes |
| 4-Methyl-2-pentanone(MIBK) | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 10 | ug/L | 1.0 | - | U | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| o-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Xylene (total) | 1.0 | ug/L | 1.0 | - | U | Yes |

Sample ID: JC16038-10
Sample location: BMSMC Building 5 Area
Sampling date: 3/8/2016
Matrix: Groundwater

METHOD: 8260C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| Acetone | 10 | ug/L | 1.0 | - | U | Yes |
| Benzene | 0.50 | ug/L | 1.0 | - | U | Yes |
| Benzyl Chloride | 5.0 | ug/L | 1.0 | - | U | Yes |
| Bromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromodichloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Bromoform | 2.0 | ug/L | 1.0 | - | U | Yes |
| Bromomethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| Butanone (MEK) | 10 | ug/L | 1.0 | - | U | Yes |
| Carbon disulfide | 2.0 | ug/L | 1.0 | - | U | Yes |
| Carbon tetrachloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloroform | 1.0 | ug/L | 1.0 | - | U | Yes |
| Chloromethane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Cyclohexane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromo-3-chloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dibromochloromethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dibromoethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,3-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,4-Dichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Dichlorodifluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |

| | | | | | | |
|----------------------------|-----|------|-----|---|---|-----|
| trans-1,2-Dichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2-Dichloropropane | 1.0 | ug/L | 1.0 | - | U | Yes |
| cis-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| trans-1,3-Dichloropropene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Ethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Freon 113 | 1.0 | ug/L | 1.0 | - | U | Yes |
| 2-Hexanone | 5.0 | ug/L | 1.0 | - | U | Yes |
| Isopropylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| p-Isopropyltoluene | 2.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Acetate | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylcyclohexane | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methyl Tert Butyl Ether | 1.9 | ug/L | 1.0 | - | - | Yes |
| 4-Methyl-2-pentanone(MIBK) | 5.0 | ug/L | 1.0 | - | U | Yes |
| Methylene chloride | 2.0 | ug/L | 1.0 | - | U | Yes |
| Styrene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2,2-Tetrachloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrachloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Tetrahydrofuran | 10 | ug/L | 1.0 | - | U | Yes |
| Toluene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,3-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trichlorobenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,1-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| 1,1,2-Trichloroethane | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichloroethene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Trichlorofluoromethane | 2.0 | ug/L | 1.0 | - | U | Yes |
| 1,2,4-Trimethylbenzene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Vinyl chloride | 1.0 | ug/L | 1.0 | - | U | Yes |
| m,p-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| o-Xylene | 1.0 | ug/L | 1.0 | - | U | Yes |
| Xylene (total) | 1.0 | ug/L | 1.0 | - | U | Yes |

DATA REVIEW WORKSHEETS

Project Number: JC16038
 Date: March 8-9, 2016
 Shipping date: March 9-10, 2016
 EPA Region: 2

REVIEW OF VOLATILE ORGANIC PACKAGE Low/Medium Volatile Data Validation

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: USEPA Hazardous Waste Support Section SOP No. HW-33A Revision 0 SOM02.2. Low/Medium Volatile Data Validation. July, 2015. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

The hardcopied (laboratory name) Accutest data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: JC16038 Sample matrix: Groundwater
 No. of Samples: 10

Trip blank No.: JC16038-7
 Field blank No.: JC16038-9
 Equipment blank No.: -
 Field duplicate No.: JC16038-5/-6 (MW-16/MW-16D)

| | |
|---|---|
| <input checked="" type="checkbox"/> Data Completeness | <input checked="" type="checkbox"/> Laboratory Control Spikes |
| <input checked="" type="checkbox"/> Holding Times | <input checked="" type="checkbox"/> Field Duplicates |
| <input checked="" type="checkbox"/> GC/MS Tuning | <input checked="" type="checkbox"/> Calibrations |
| <input checked="" type="checkbox"/> Internal Standard Performance | <input checked="" type="checkbox"/> Compound Identifications |
| <input checked="" type="checkbox"/> Blanks | <input checked="" type="checkbox"/> Compound Quantitation |
| <input checked="" type="checkbox"/> Surrogate Recoveries | <input checked="" type="checkbox"/> Quantitation Limits |
| <input checked="" type="checkbox"/> Matrix Spike/Matrix Spike Duplicate | |

Overall Comments: VOA_TCL_list_(SW846_8260C)

Definition of Qualifiers:

J- Estimated results
 U- Compound not detected
 R- Rejected data
 UJ- Estimated non-detect

Reviewer: Rafael Infante
 Date: April 15, 2016

DATE RECEIVED

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

| SAMPLE ID | DATE SAMPLED | DATE ANALYZED | pH | ACTION |
|--|--------------|---------------|----|--------|
| | | | | |
| | | | | |
| | | | | |
| Samples analyzed within method recommended holding time. Sample preservation within required criteria. | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Criteria

Aqueous samples – 14 days from sample collection for preserved samples ($\text{pH} \leq 2$, $4 \pm 2^\circ\text{C}$), no air bubbles.

Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C , no air bubbles.

Soil samples- 14 days from sample collection.

Cooler temperature (Criteria: $4 \pm 2^\circ\text{C}$): 3.6°C - OK

Actions

Aqueous samples

- If there is no evidence that the samples were properly preserved ($\text{pH} < 2$, $T = 4^\circ\text{C} \pm 2^\circ\text{C}$), but the samples were analyzed within the technical holding time [7 days from sample collection], no qualification of the data is necessary.
- If there is no evidence that the samples were properly preserved, and the samples were analyzed outside of the technical holding time [7 days from sample collection], qualify detects for all volatile compounds as estimated (J) and non-detects as unusable (R).
- If the samples were properly preserved, and the samples were analyzed within the technical holding time [14 days from sample collection], no qualification of the data is necessary.
- If the samples were properly preserved, but were analyzed outside of the technical holding time [14 days from sample collection], qualify detects as estimated (J) and non-detects as unusable (R).
- If air bubbles were present in the sample vial used for analysis, qualify detected compounds as estimated (J-) and non-detected compounds as estimated (UJ).

Non-aqueous samples

DATA REVIEW WORKSHEETS

- a. If there is no evidence that the samples were properly preserved ($T < -7^{\circ}\text{C}$ or $T = 4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and preserved with NaHSO_4), but the samples were analyzed within the technical holding time [14 days from sample collection], qualify detects for all volatile compounds as estimated (J) and non-detects as (UJ) or unusable (R) using professional judgment.
- b. If the samples were properly preserved, and the samples were analyzed within the technical holding time [14 days from sample collection], no qualification of the data is necessary.
- c. If there is no evidence that the samples were properly preserved, and the samples were analyzed outside of the technical holding time [14 days from sample collection], qualify detects for all volatile compounds as estimated (J) and non-detects as unusable (R).
- d. If the samples were properly preserved, but were analyzed outside of the technical holding time [14 days from sample collection], qualify detects as estimated (J) and non-detects as unusable (R).

Qualify TCLP/SPLP samples

- a. If the TCLP/SPLP ZHE procedure is performed within the extraction technical holding time of 14 days, detects and non-detects should not be qualified.
- b. If the TCLP/SPLP ZHE procedure is performed outside the extraction technical holding time of 14 days, qualify detects as estimated (J) and non-detects as unusable (R).
- c. If TCLP/SPLP aqueous samples and TCLP/SPLP leachate samples are analyzed within the technical holding time of 7 days, detects and non-detects should not be qualified.
- d. If TCLP/SPLP aqueous samples and TCLP/SPLP leachate samples are analyzed outside of the technical holding time of 7 days, qualify detects as estimated (J) and non-detects as unusable (R).

Table 1. Holding Time Actions for Low/Medium Volatile Analyses - Summary

Table 1. Holding Time Actions for Low/Medium Volatile Analyses - Summary

| Matrix | Preserved | Criteria | Action | |
|---|---|-----------|-------------------------------|-----------------------------------|
| | | | Detected Associated Compounds | Non-Detected Associated Compounds |
| | | | | |
| Aqueous | No | ≤ 7 days | No qualification | |
| | No | > 7 days | J | R |
| | Yes | ≤ 14 days | No qualification | |
| | Yes | > 14 days | J | R |
| Non-Aqueous | No | ≤ 14 days | J | Professional judgment, UJ or R |
| | Yes | ≤ 14 days | No qualification | |
| | Yes/No | > 14 days | J | R |
| TCLP/SPLP | Yes | ≤ 14 days | No qualification | |
| TCLP/SPLP | No | > 14 days | J | R |
| TCLP/SPLP | ZHE performed within the 14-day technical holding time | | No qualification | |
| TCLP/SPLP | ZHE performed outside the 14-day technical holding time | | J | R |
| TCLP/SPLP aqueous & TCLP/SPLP leachate | Analyzed within 7 days | | No qualification | |
| TCLP/SPLP aqueous & TCLP/SPLP leachate | Analyzed outside 7 days | | J | R |
| Sample temperature outside 4°C ± 2°C upon receipt at the laboratory | | | Use professional judgment | |
| Holding times grossly exceeded | | | J | R |

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met see below

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

 X The BFB performance results were reviewed and found to be within the specified criteria.

 X BFB tuning was performed for every 12 hours of sample analysis.

NOTES: All mass spectrometer instrument conditions must be identical to those used during the sample analysis. Background subtraction actions resulting in spectral distortions for the sole purpose of meeting the method specifications are contrary to the Quality Assurance (QA) objectives, and are therefore unacceptable.

NOTES: No data should be qualified based on BFB failure. Instances of this should be noted in the narrative.

All ion abundance ratios must be normalized to m/z 95, the nominal base peak, even though the ion abundance of m/z 174 may be up to 120% that of m/z 95.

Actions:

If samples are analyzed without a preceding valid instrument performance check, qualify all data in those samples as unusable (R).

If ion abundance criteria are not met, professional judgment may be applied to determine to what extent the data may be utilized. When applying professional judgment to this topic, the most important factors to consider are the empirical results that are relatively insensitive to location on the chromatographic profile and the type of instrumentation. Therefore, the critical ion abundance criteria for BFB are the m/z 95/96, 174/175, 174/176, and 176/177 ratios. The relative abundances of m/z 50 and 75 are of lower importance. This issue is more critical for Tentatively Identified Compounds (TICs) than for target analytes.

Note: State in the Data Review Narrative, decisions to use analytical data associated with BFB instrument performance checks not meeting contract requirements.

Note: Verify that that instrument instrument performance check criteria were achieved using techniques described in Low/Medium Volatiles Organic Analysis, Section II.D.5 of the SOM02.2 NFG, obtain additional information on the instrument performance checks. Make sure that background subtraction was performed from the BFB peak and not from background subtracting from the solvent front or from another region of the chromatogram.

DATA REVIEW WORKSHEETS

Use professional judgment to determine whether associated data should be qualified based on the spectrum of the mass calibration compound.

List the samples affected:

If mass calibration is in error, all associated data are rejected.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below _____

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration: 03/04/16 02/26/16
 Dates of continuing (initial) calibration: 03/04/16 02/26/16
 Dates of continuing calibration: 03/17/16 03/15/16; 03/16/15
 Instrument ID numbers: GCMSA GCMSU
 Matrix/Level: Aqueous/low Aqueous/low

| DATE | LAB ID# | FILE | CRITERIA OUT RFs, %RSD, %D, r | COMPOUND | SAMPLES AFFECTED |
|---|---------|------|----------------------------------|----------|---------------------|
| | | | | | |
| | | | | | |
| | | | | | |
| Initial calibration and initial calibration verification within the required criteria. Continuing calibration for Freon 113 (- 28% D) and Acetone (-33.3 % D) outside method performance criteria but within guidance document criteria. Closing calibration check verification not included in data package. No action taken, professional judgment. | | | | | |
| | | | | | |
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Criteria

The analyte calibration criteria in the following Table must be obtained. Analytes not meeting the criteria are qualified.

A separate worksheet should be filled for each initial curve

DATA REVIEW WORKSHEETS

Initial Calibration - Table 2. RRF, %RSD, and %D Acceptance Criteria for Initial Calibration and CCV for Low/Medium Volatile Analysis

| Analyte | Minimum RRF | Maximum %RSD | Opening Maximum %D ¹ | Closing Maximum %D |
|---------------------------------------|-------------|--------------|---------------------------------|--------------------|
| Dichlorodifluoromethane | 0.010 | 25.0 | ±40.0 | ±50.0 |
| Chloromethane | 0.010 | 20.0 | ±30.0 | ±50.0 |
| Vinyl chloride | 0.010 | 20.0 | ±25.0 | ±50.0 |
| Bromomethane | 0.010 | 40.0 | ±30.0 | ±50.0 |
| Chloroethane | 0.010 | 40.0 | ±25.0 | ±50.0 |
| Trichlorofluoromethane | 0.010 | 40.0 | ±30.0 | ±50.0 |
| 1,1-Dichloroethene | 0.060 | 20.0 | ±20.0 | ±25.0 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.050 | 25.0 | ±25.0 | ±50.0 |
| Acetone | 0.010 | 40.0 | ±40.0 | ±50.0 |
| Carbon disulfide | 0.100 | 20.0 | ±25.0 | ±25.0 |
| Methyl acetate | 0.010 | 40.0 | ±40.0 | ±50.0 |
| Methylene chloride | 0.010 | 40.0 | ±30.0 | ±50.0 |
| trans-1,2-Dichloroethene | 0.100 | 20.0 | ±20.0 | ±25.0 |
| Methyl tert-butyl ether | 0.100 | 40.0 | ±25.0 | ±50.0 |
| 1,1-Dichloroethane | 0.300 | 20.0 | ±20.0 | ±25.0 |
| cis-1,2-Dichloroethene | 0.200 | 20.0 | ±20.0 | ±25.0 |
| 2-Butanone | 0.010 | 40.0 | ±40.0 | ±50.0 |
| Bromochloromethane | 0.100 | 20.0 | ±20.0 | ±25.0 |
| Chloroform | 0.300 | 20.0 | ±20.0 | ±25.0 |
| 1,1,1-Trichloroethane | 0.050 | 20.0 | ±25.0 | ±25.0 |
| Cyclohexane | 0.010 | 40.0 | ±25.0 | ±50.0 |
| Carbon tetrachloride | 0.100 | 20.0 | ±25.0 | ±25.0 |
| Benzene | 0.200 | 20.0 | ±20.0 | ±25.0 |
| 1,2-Dichloroethane | 0.070 | 20.0 | ±20.0 | ±25.0 |
| Trichloroethene | 0.200 | 20.0 | ±20.0 | ±25.0 |
| Methylcyclohexane | 0.050 | 40.0 | ±25.0 | ±50.0 |
| 1,2-Dichloropropane | 0.200 | 20.0 | ±20.0 | ±25.0 |
| Bromodichloromethane | 0.300 | 20.0 | ±20.0 | ±25.0 |
| cis-1,3-Dichloropropene | 0.300 | 20.0 | ±20.0 | ±25.0 |
| 4-Methyl-2-pentanone | 0.030 | 25.0 | ±30.0 | ±50.0 |
| Toluene | 0.300 | 20.0 | ±20.0 | ±25.0 |
| trans-1,3-Dichloropropene | 0.200 | 20.0 | ±20.0 | ±25.0 |
| 1,1,2-Trichloroethane | 0.200 | 20.0 | ±20.0 | ±25.0 |
| Tetrachloroethene | 0.100 | 20.0 | ±20.0 | ±25.0 |
| 2-Hexanone | 0.010 | 40.0 | ±40.0 | ±50.0 |
| Dibromochloromethane | 0.200 | 20.0 | ±20.0 | ±25.0 |
| 1,2-Dibromoethane | 0.200 | 20.0 | ±20.0 | ±25.0 |
| Chlorobenzene | 0.400 | 20.0 | ±20.0 | ±25.0 |
| Ethylbenzene | 0.400 | 20.0 | ±20.0 | ±25.0 |

DATA REVIEW WORKSHEETS

| Analyte | Minimum RRF | Maximum %RSD | Opening Maximum %D ¹ | Closing Maximum |
|--|-------------|--------------|---------------------------------|-----------------|
| m,p-Xylene | 0.200 | 20.0 | ±20.0 | ±25.0 |
| o-Xylene | 0.200 | 20.0 | ±20.0 | ±25.0 |
| Styrene | 0.200 | 20.0 | ±20.0 | ±25.0 |
| Bromoform | 0.100 | 20.0 | ±25.0 | ±50.0 |
| Isopropylbenzene | 0.400 | 20.0 | ±25.0 | ±25.0 |
| 1,1,2,2-Tetrachloroethane | 0.200 | 20.0 | ±25.0 | ±25.0 |
| 1,3-Dichlorobenzene | 0.500 | 20.0 | ±20.0 | ±25.0 |
| 1,4-Dichlorobenzene | 0.600 | 20.0 | ±20.0 | ±25.0 |
| 1,2-Dichlorobenzene | 0.600 | 20.0 | ±20.0 | ±25.0 |
| 1,2-Dibromo-3-chloropropane | 0.010 | 25.0 | ±30.0 | ±50.0 |
| 1,2,4-Trichlorobenzene | 0.400 | 20.0 | ±30.0 | ±50.0 |
| 1,2,3-Trichlorobenzene | 0.400 | 25.0 | ±30.0 | ±50.0 |
| Deuterated Monitoring Compound | | | | |
| Vinyl chloride-d ₃ | 0.010 | 20.0 | ±30.0 | ±50.0 |
| Chloroethane-d ₃ | 0.010 | 40.0 | ±30.0 | ±50.0 |
| 1,1-Dichloroethene-d ₂ | 0.050 | 20.0 | ±25.0 | ±25.0 |
| 2-Butanone-d ₆ | 0.010 | 40.0 | ±40.0 | ±50.0 |
| Chloroform-d | 0.300 | 20.0 | ±20.0 | ±25.0 |
| 1,2-Dichloroethane-d ₄ | 0.060 | 20.0 | ±25.0 | ±25.0 |
| Benzene-d ₆ | 0.300 | 20.0 | ±20.0 | ±25.0 |
| 1,2-Dichloropropane-d ₄ | 0.200 | 20.0 | ±20.0 | ±25.0 |
| Toluene-d ₈ | 0.300 | 20.0 | ±20.0 | ±25.0 |
| trans-1,3-Dichloropropene-d ₃ | 0.200 | 20.0 | ±20.0 | ±25.0 |
| 2-Hexanone-d ₈ | 0.010 | 40.0 | ±40.0 | ±50.0 |
| 1,1,2,2-Tetrachloroethane-d ₂ | 0.200 | 20.0 | ±25.0 | ±25.0 |
| 1,2-Dichlorobenzene-d ₄ | 0.400 | 20.0 | ±20.0 | ±25.0 |

¹ If a closing CCV is acting as an opening CCV, all target analytes and DMCs must meet the requirements for an opening CCV.

Actions:

1. If any volatile target compound has an RRF value less than the minimum in the table, use professional judgment for detects, based on mass spectral identification, to qualify the data as estimated (J+ or R).
 - a. If any volatile target compound has an RRF value less than the minimum criterion, qualify non-detected compounds as unusable (R).
 - b. If any of the volatile target compounds listed in the Table has %RSD greater than the criteria, qualify detects as estimated (J), and non-detected compounds using professional judgment.
 - c. If the volatile target compounds meet the acceptance criteria for RRF and the %RSD, no qualification of the data is necessary.

DATA REVIEW WORKSHEETS

- d. No qualification of the data is necessary on the DMC RRF and %RSD data alone. Use professional judgment and follow the guidelines in Action 2 to evaluate the DMC RRF and %RSD data in conjunction with the DMC recoveries to determine the need for qualification of data.
2. At the reviewer's discretion, and based on the project-specific Data Quality Objectives (DQOs), a more in-depth review may be considered using the following guidelines:
 - a. If any volatile target compound has a %RSD greater than the maximum criterion in the Table, and if eliminating either the high or the low-point of the curve does not restore the %RSD to less than or equal to the required maximum:
 - i. Qualify detects for that compound(s) as estimated (J).
 - ii. Qualify non-detected volatile target compounds using professional judgment.
 - b. If the high-point of the curve is outside of the linearity criteria (e.g., due to saturation):
 - i. Qualify detects outside of the linear portion of the curve as estimated (J).
 - ii. No qualifiers are required for detects in the linear portion of the curve.
 - iii. No qualifiers are required for volatile target compounds that were not detected.
 - c. If the low-point of the curve is outside of the linearity criteria:
 - i. Qualify low-level detects in the area of non-linearity as estimated (J).
 - ii. No qualifiers are required for detects in the linear portion of the curve.
 - iii. For non-detected volatile compounds, use the lowest point of the linear portion of the curve to determine the new quantitation limit.

Note: If the laboratory has failed to provide adequate calibration information, inform the Region's designated representative to contact the laboratory and request the necessary information. If the information is not available, the reviewer must use professional judgment to assess the data.

State in the Data Review Narrative, if possible, the potential effects on the data due to calibration criteria exceedance.

Note, for the Laboratory COR action, if calibration criteria are grossly exceeded.

Table. Initial Calibration Actions for Low/Medium Volatile Analysis – Summary

| Criteria | Action | |
|---|--------------------------------------|--------------------------------|
| | Detect | Non-detect |
| Initial Calibration not performed at specified frequency and sequence | Use professional judgment R | Use professional judgment R |
| Initial Calibration not performed at the specified concentrations | J | UJ |
| RRF < Minimum RRF in Table for target analyte | Use professional judgment J+ or R | R |
| RRF > Minimum RRF in Table for target analyte | No qualification | No qualification |
| %RSD > Maximum %RSD in Table for target analyte | J | Use professional judgment |
| %RSD = Maximum %RSD in Table for target analyte | No qualification | No qualification |

All criteria were met X
Criteria were not met _____
and/or see below _____

Continuing Calibration Verification (CCV)

NOTE: Verify that the CCV was run at the required frequency (an opening and closing CCV must be run within 12-hour period) and the CCV was compared to the correct initial calibration. If the mid-point standard from the initial calibration is used as an opening CCV, verify that the result (RRF) of the mid-point standard was compared to the average RRF from the correct initial calibration.

The closing CCV used to bracket the end of a 12-hour analytical sequence may be used as the opening CCV for the new 12-hour analytical sequence, provided that all the technical acceptance criteria are met for an opening CCV (see criteria show before in the Table) . If the closing CCV does not meet the technical acceptance criteria for an opening CCV, then a BFB tune followed by an opening CCV is required and the next 12-hour time period begins with the BFB tune.

All DMCs must meet RRF criteria. No qualification of the data is necessary on the DMCs RRF and %RSD/%D data alone. However, use professional judgment to evaluate the DMC and %RSD/%D data in conjunction with the DMC recoveries to determine the need of qualification the data.

Action:

1. If a CCV (opening and closing) was not run at the appropriate frequency, qualify data using professional judgment.
2. Qualify all volatile target compounds in Table shown before using the following criteria:
 - a. For an opening CCV, if any volatile target compound has an RRF value less than the minimum criterion, use professional judgment for detects, based on mass spectral identification, to qualify the data as estimated (J) and qualify non-detected compounds as unusable (R).
 - b. For a closing CCV, if any volatile target compound has an RRF value less than the criteria, use professional judgment for detects based on mass spectral identification to qualify the data as estimated (J), and qualify non-detected compounds as unusable (R).
 - c. For an opening CCV, if the Percent Difference value for any of the volatile target compounds is outside the limits in calibration criteria Table shown before, qualify detects as estimated (J) and non-detected compounds as estimated (UJ).
 - d. For a closing CCV, if the Percent Difference value for any volatile target compound is outside the limits in calibration criteria table, qualify detects as estimated (J) and non-detected compounds as estimated (UJ).
 - e. If the volatile target compounds meet the acceptable criteria for RRF and the Percent Difference, no qualification of the data is necessary.

DATA REVIEW WORKSHEETS

- f. No qualification of the data is necessary on the DMC RRF and the Percent Difference data alone. Use professional judgment to evaluate the DMC RRF and Percent Difference data in conjunction with the DMC recoveries to determine the need for qualification of data.

Notes: If the laboratory has failed to provide adequate calibration information, inform the Region's designated representative to contact the laboratory and request the necessary information. If the information is not available, the reviewer must use professional judgment to assess the data.

State in the Data Review Narrative, if possible, the potential effects on the data due to calibration criteria exceedance.

Note, for Contract Laboratory COR action, if calibration criteria are grossly exceeded.

Table. Continuing Calibration Actions for Low/Medium Volatile Analysis – Summary

| Criteria for Opening CCV | Criteria for Closing CCV | Action | |
|---|---|-------------------------------------|--------------------------------|
| | | Detect | Non-detect |
| CCV not performed at required frequency | CCV not performed at required frequency | Use professional judgment R | Use professional judgment R |
| CCV not performed at specified concentration | CCV not performed at specified concentration | Use professional judgment | Use professional judgment |
| RRF < Minimum RRF in Table 2 for target analyte | RRF < Minimum RRF in Table 2 for target analyte | Use professional judgment J or R | R |
| RRF ≥ Minimum RRF in Table 2 for target analyte | RRF ≥ Minimum RRF in Table 2 for target analyte | No qualification | No qualification |
| %D outside the Opening Maximum %D limits in Table 2 for target analyte | %D outside the Closing Maximum %D limits in Table 2 for target analyte | J | UJ |
| %D within the inclusive Opening Maximum %D limits in Table 2 for target analyte | %D within the inclusive Closing Maximum %D limits in Table 2 for target analyte | No qualification | No qualification |

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

The concentration of a target analyte in any blank must not exceed its Contract Required Quantitation Limit (CRQL) (2x CRQLs for Methylene chloride, Acetone, and 2-Butanone). TIC concentration in any blanks must be ≤ 5.0 $\mu\text{g/L}$ for water (0.0050 mg/L for TCLP leachate) and ≤ 5.0 $\mu\text{g/kg}$ for soil matrices.

Laboratory blanks

The method blank, like any other sample in the SDG, must meet the technical acceptance criteria for sample analysis.

| DATE ANALYZED | LAB ID | LEVEL/ MATRIX | COMPOUND | CONCENTRATION UNITS |
|--|--------|---------------|----------|---------------------|
| | | | | |
| | | | | |
| No target analyte detected in method blanks. | | | | |
| | | | | |

Field/Equipment/Trip blank

If field or trip blanks are present, the data reviewer should evaluate this data in a similar fashion as the method blanks.

| DATE ANALYZED | LAB ID | LEVEL/ MATRIX | COMPOUND | CONCENTRATION UNITS |
|--|-----------|---------------|-------------------|----------------------|
| No target analytes detected in the trip blank. No equipment blank analyzed as part of this data package. | | | | |
| Field Blank | | | | |
| 03/15/16 | JC16038-9 | Aqueous/low | Chlorobenzene | 0.30 $\mu\text{g/L}$ |
| | | | Isopropyl benzene | 0.91 $\mu\text{g/L}$ |
| | | | MTBE | 4.5 $\mu\text{g/L}$ |

Note: No action taken, professional judgment.

All criteria were met X
 Criteria were not met
 and/or see below

BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Note: All fields blank results associated with a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped. Blanks may not be qualified because of contamination in another blank. Field blanks and trip blanks must be qualified for system monitoring compounds, instrument performance criteria, and spectral or calibration QC problems.

Samples taken from a drinking water tap do not have associated field blanks.

When applied as described in the Table below, the contaminant concentration in the blank is multiplied by the sample dilution factor.

Table. Blank and TCLP/SPLP LEB Actions for Low/Medium Volatile Analysis

| Blank Type | Blank Result | Sample Result | Action for Samples |
|--|------------------------|--------------------------------------|---|
| Method. Storage. Field. Trip. TCLP SPLP LEB. Instrument** | Detects | Not detected | No qualification required |
| | < CRQL * | < CRQL * | Report CRQL value with a U |
| | | ≥ CRQL * | No qualification required |
| | > CRQL * | < CRQL * | Report CRQL value with a U |
| | | ≥ CRQL* and ≤ blank concentration | Report blank value for sample concentration with a U |
| | | ≥ CRQL* and > blank concentration | No qualification required |
| | = CRQL * | ≤ CRQL * | Report CRQL value with a U |
| | | > CRQL * | No qualification required |
| | Gross contamination | Detects | Report blank value for sample concentration with a U |

* 2x the CRQL for methylene chloride, 2-butanone and acetone.

** Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 µg/L.

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

DATA REVIEW WORKSHEETS

Notes:

High and low level blanks must be treated separately

Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

| CONTAMINATION SOURCE/LEVEL | COMPOUND | CONC/UNITS | AL/UNITS | SQL | AFFECTED SAMPLES |
|-------------------------------|----------|------------|----------|-----|---------------------|
| | | | | | |
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| | | | | | |

All criteria were met X
 Criteria were not met
 and/or see below

DEUTERATED MONITORING COMPOUNDS (DMCs)

Laboratory performance of individual samples is established by evaluation of surrogate spike (DMCs) recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

Table. Volatile Deuterated Monitoring Compounds (DMCs) and Recovery Limits

| DMC | %R for Water Sample | %R for Soil Sample |
|------------------------------|---------------------|--------------------|
| Vinyl chloride-d3 | 60-135 | 30-150 |
| Chloroethane-d5 | 70-130 | 30-150 |
| 1,1-Dichloroethene-d2 | 60-125 | 45-110 |
| 2-Butanone-d5 | 40-130 | 20-135 |
| Chloroform-d | 70-125 | 40-150 |
| 1,2-Dichloroethane-d4 | 70-125 | 70-130 |
| Benzene-d6 | 70-125 | 20-135 |
| 1,2-Dichloropropane-d6 | 70-120 | 70-120 |
| Toluene-d8 | 80-120 | 30-130 |
| trans-1,3-Dichloropropene-d4 | 60-125 | 30-135 |
| 2-Hexanone-d5 | 45-130 | 20-135 |
| 1,1,2,2-Tetrachloroethane-d2 | 65-120 | 45-120 |
| 1,2-Dichlorobenzene-d4 | 80-120 | 75-120 |

NOTE: The recovery limits for any of the compounds listed in the above Table may be expanded at any time during the period of performance if the United States Environmental Protection Agency (EPA) determines that the limits are too restrictive.

Action:

Are recoveries for DMCs in volatile samples and blanks must be within the limits specified in the Table above. Yes? or No?

NOTE: The recovery limits for any of the compounds listed in the Table above may be expanded at any time during the period of performance if USEPA determines that the limits are too restrictive.

DATA REVIEW WORKSHEETS

List the DMCs that may fail to meet the recovery limits

| Sample ID | Date | DMCs | % Recovery | Action |
|-----------|------|------|------------|--------|
|-----------|------|------|------------|--------|

DMCs recoveries within the required limits. Other non-deuterated surrogates added to the samples within laboratory control limits.

Note: Any sample which has more than 3 DMCs outside the limits must be reanalyzed.

Action:

- For any recovery greater than the upper acceptance limit:
 - Qualify detected associated volatile target compounds as estimated high (J+).
 - Do not qualify non-detected associated volatile target compounds.
- For any recovery greater than or equal to 10%, and less than the lower acceptance limit:
 - Qualify detected associated volatile target compounds as estimated low (J-).
 - Qualify non-detected associated volatile target compounds as estimated (UJ).
- For any recovery less than 10%:
 - Qualify detected associated volatile target compounds as estimated low (J-).
 - Qualify non-detected associated volatile target compounds as unusable (R).
- For any recovery within acceptance limits, no qualification of the data is necessary.
- In the special case of a blank analysis having DMCs out of specification, the reviewer must give special consideration to the validity of associated sample data. The basic concern is whether the blank problems represent an isolated problem with the blank alone, or whether there is a fundamental problem with the analytical process. For example, if one or more samples in the batch show acceptable DMC recoveries, the reviewer may choose to consider the blank problem to be an isolated occurrence. However, even if this judgment allows some use of the affected data, note analytical problems for Contract Laboratory COR action.
- If more than three DMCs are outside of the recovery limits for Low/Medium volatiles analysis and the sample was not reanalyzed, note under Contract Problems/Non-Compliance.

Table. Deuterated Monitoring Compound (DMC) Recovery Actions for Low/Medium Volatiles Analyses – Summary

| Criteria | Action | |
|---|-----------------------------|-----------------------------------|
| | Detect Associated Compounds | Non-detected Associated Compounds |
| $\%R < 10\%$ | J- | R |
| $10\% \leq \%R < \text{Lower Acceptance Limit}$ | J- | UJ |
| $\text{Lower Acceptance Limit} \leq \%R \leq \text{Upper Acceptance Limit}$ | No qualification | No qualification |
| $\%R > \text{Upper Acceptance Limit}$ | J+ | No qualification |

DATA REVIEW WORKSHEETS

TABLE. VOLATILE DEUTERATED MONITORING COMPOUNDS (DMCs) AND THE ASSOCIATED TARGET COMPOUNDS

| | | |
|--|--|--|
| Vinyl chloride-d₃ (DMC-1) | Chloroethane-d₃ (DMC-2) | 1,1-Dichloroethene-d₂ (DMC-3) |
| Vinyl chloride | Dichlorodifluoromethane Chloromethane Bromomethane Chloroethane Carbon disulfide | trans-1,2-Dichloroethene cis-1,2-Dichloroethene 1,1-Dichloroethene |
| 2-Butanone-d₆ (DMC-4) | Chloroform-d (DMC-5) | 1,2-Dichloroethane-d₂ (DMC-6) |
| Acetone 2-Butanone | 1,1-Dichloroethane Bromochloromethane Chloroform Dibromochloromethane Bromoform | Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-trifluoroethane Methyl acetate Methylene chloride Methyl-tert-butyl ether 1,1,1-Trichloroethane Carbon tetrachloride 1,2-Dibromoethane 1,2-Dichloroethane |
| Benzene-d₆ (DMC-7) | 1,2-Dichloropropane-d₂ (DMC-8) | Toluene-d₃ (DMC-9) |
| Benzene | Cyclohexane Methylcyclohexane 1,2-Dichloropropane Bromodichloromethane | Trichloroethene Toluene Tetrachloroethene Ethylbenzene o-Xylene m,p-Xylene Styrene Isopropylbenzene |
| trans-1,3-Dichloropropene-d₂ (DMC-10) | 2-Hexanone-d₈ (DMC-11) | 1,1,2,2-Tetrachloroethane-d₂ (DMC-12) |
| cis-1,3-Dichloropropene trans-1,3-Dichloropropene 1,1,2-Trichloroethane | 4-Methyl-2-pentanone 2-Hexanone | 1,1,2,2-Tetrachloroethane 1,2-Dibromo-3-chloropropane |
| 1,2-Dichlorobenzene-d₂ (DMC-13) | | |
| Chlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene | | |

All criteria were met X
 Criteria were not met
 and/or see below

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

NOTES: Data for MS and MSDs will not be present unless requested by the Region.
 Notify the Contract Laboratory COR if a field or trip blank was used for the MS and MSD.

For a Matrix Spike that does not meet criteria, apply the action to only the field sample used to prepare the Matrix Spike sample. If it is clearly stated in the data validation materials that the samples were taken through incremental sampling or some other method guaranteeing the homogeneity of the sample group, then the entire sample group may be qualified.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID: JC16101-1MS Matrix/Level: Groundwater
 Sample ID: JC16065-1MS Matrix/Level: Groundwater
 Sample ID: JC16250-14MS/MSD Matrix/Level: Groundwater

| MS OR MSD | COMPOUND | % R | RPD | QC LIMITS | ACTION |
|--|--------------------------|------------------|-----|-----------------|------------------|
| <u>_MS/MSD_%_recovery_and_RPD_within_laboratory_control_limits_except_for_the_followings:_</u> | | | | | |
| <u>JC16250-14</u> | | | | | |
| <u>_MS/MSD</u> | <u>Toluene</u> | <u>-39%/-29%</u> | | <u>51 - 136</u> | <u>No action</u> |
| <u>_MS/MSD</u> | <u>m- & p-xylene</u> | <u>30%/34%</u> | | <u>42 - 139</u> | <u>No action</u> |
| <u>_MS/MSD</u> | <u>Xylene (total)</u> | <u>40%/45%</u> | | <u>46 - 137</u> | <u>No action</u> |

Note: No action taken, sample concentration high relative to amount spiked.

MS/MSD criteria apply to the unspiked sample. Unspiked sample belongs to from another data package.

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 70 – 130 %.

DATA REVIEW WORKSHEETS

Actions:

1. No qualification of the data is necessary on MS and MSD data alone. However, using professional judgment, the validator may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

| QUALITY | %R < LL | %R > UL |
|--------------------|---------|---------|
| Positive results | J | J |
| Nondetects results | R | Accept |

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (JJ).

If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).

If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

All criteria were met X
 Criteria were not met
 and/or see below

LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD?
 Yes or No. If no make note in data review memo.

List the %R of compounds which do not meet the criteria

| LCS ID | COMPOUND | % R | QC LIMIT |
|---|----------|-----|----------|
| Recoveries (blank spike) within laboratory control limits | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 70 – 130 %.

Actions:

| QUALITY | %R < LL | %R > UL |
|--------------------|---------|---------|
| Positive results | J | J |
| Nondetects results | R | Accept |

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (J) and reject nondetects (R).

If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or No.

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

IX. FIELD/LABORATORY DUPLICATE PRECISION

Sample IDs: JC16038-5/-6

Matrix: Groundwater

Field/laboratory duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.

NOTE: In the absence of QAPP guidance for validating data from field duplicates, the following action will be taken.

Identify which samples within the data package are field duplicates. Estimate the relative percent difference (RPD) between the values for each compound. Use professional judgment to note large RPDs (> 50%) in the narrative.

| COMPOUND | SQL | SAMPLE CONC. | DUPLICATE CONC. | RPD | ACTION |
|--|-----|--------------|-----------------|-----|--------|
| | | | | | |
| | | | | | |
| RPD within required criteria, < 50 % for target analytes detected in sample and duplicate. | | | | | |
| | | | | | |
| | | | | | |

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions are suggested based on professional judgment:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met X
 Criteria were not met
 and/or see below

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

| DATE | SAMPLE ID | IS OUT | IS AREA | ACCEPTABLE RANGE | ACTION |
|------|-----------|--------|---------|------------------|--------|
|------|-----------|--------|---------|------------------|--------|

Internal standard area counts within the required criteria.

Action:

1. If an internal standard area count for a sample or blank is greater than 200.0% of the area for the associated standard (opening CCV or mid-point standard from initial calibration) (see Table below):
 - a. Qualify detects for compounds quantitated using that internal standard as estimated low (J-).
 - b. Do not qualify non-detected associated compounds.
2. If an internal standard area count for a sample or blank is less than 20.0% of the area for the associated standard (opening CCV or mid-point standard from initial calibration):
 - a. Qualify detects for compounds quantitated using that internal standard as estimated high (J+).
 - b. Qualify non-detected associated compounds as unusable (R).
3. If an internal standard area count for a sample or blank is greater than or equal to 20.0%, and less than or equal to 200% of the area for the associated standard opening CCV or mid-point standard from initial calibration, no qualification of the data is necessary.
4. If an internal standard RT varies by more than 30.0 seconds: Examine the chromatographic profile for that sample to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Detects should not need to be qualified as unusable (R) if the mass spectral criteria are met.
5. If an internal standard RT varies by less than or equal to 30.0 seconds, no qualification of the data is necessary.

Note: Inform the Contract Laboratory Program Project Officer (CLP PO) if the internal standard performance criteria are grossly exceeded. Note in the Data Review Narrative potential effects on the data resulting from unacceptable internal standard performance.

DATA REVIEW WORKSHEETS

6. If required internal standard compounds are not added to a sample or blank, qualify detects and non-detects as unusable (R).
7. If the required internal standard compound is not analyzed at the specified concentration in a sample or blank, use professional judgment to qualify detects and non-detects.

Table. Internal Standard Actions for Low/Medium Volatiles Analyses - Summary

| Criteria | Action | |
|--|--------------------------------|------------------------------------|
| | Detected Associated Compounds* | Non-detected Associated Compounds* |
| Area counts > 200% of 12-hour standard (opening CCV or mid-point standard from initial calibration) | J- | No qualification |
| Area counts < 20% of 12-hour standard (opening CCV or mid-point standard from initial calibration) | J- | R |
| Area counts ≥ 50% but ≤ 200% of 12-hour standard (opening CCV or mid-point standard from initial calibration) | No qualification | |
| RT difference > 30.0 seconds between samples and 12-hour standard (opening CCV or mid-point standard from initial calibration) | R ** | R |
| RT difference ≤ 30.0 seconds between samples and 12-hour standard (opening CCV or mid-point standard from initial calibration) | No qualification | |

* For volatile compounds associated to each internal standard, see TABLE - VOLATILE TARGET ANALYTES, DEUTERATED MONITORING COMPOUNDS WITH ASSOCIATED INTERNAL STANDARDS FOR QUANTITATION in SOM02.2, Exhibit D, available at <http://www.epa.gov/superfund/programs/clp/download/som/som22d.pdf>

** Detects should not need to be qualified as unusable (R) if the mass spectral criteria are met.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

TARGET COMPOUND IDENTIFICATION

Criteria:

Is the Relative Retention Times (RRTs) of reported compounds within ± 0.06 RRT units of the standard RRT [opening Continuing Calibration Verification (CCV) or mid-point standard from the initial calibration]. Yes? or No?

List compounds not meeting the criteria described above:

| Sample ID | Compounds | Actions |
|-----------|-----------|---------|
| ===== | ===== | ===== |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

Mass spectra of the sample compound and a current laboratory-generated standard [i.e., the mass spectrum from the associated calibration standard (opening CCV or mid-point standard from initial calibration)] must match according to the following criteria:

- All ions present in the standard mass spectrum at a relative intensity greater than 10% must be present in the sample spectrum.
- The relative intensities of these ions must agree within $\pm 20\%$ between the standard and sample spectra (e.g., for an ion with an abundance of 50% in the standard spectrum, the corresponding sample ion abundance must be between 30-70%).
- Ions present at greater than 10% in the sample mass spectrum, but not present in the standard spectrum, must be evaluated by a reviewer experienced in mass spectral interpretation.

List compounds not meeting the criteria described above:

| Sample ID | Compounds | Actions |
|-----------|-----------|---------|
| ===== | ===== | ===== |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

DATA REVIEW WORKSHEETS

Action:

1. The application of qualitative criteria for GC/MS analysis of target compounds requires professional judgment. It is up to the reviewer's discretion to obtain additional information from the laboratory. If it is determined that incorrect identifications were made, qualify all such data as unusable (R).
2. Use professional judgment to qualify the data if it is determined that cross-contamination has occurred.
3. Note in the Data Review Narrative any changes made to the reported compounds or concerns regarding target compound identifications. Note, for Contract Laboratory COR action, the necessity for numerous or significant changes.

TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

NOTE: Tentatively identified compounds should only be evaluated when requested by a party from outside of the Hazardous Waste Support Section (HWSS).

List TICs

| Sample ID | Compound | Sample ID | Compound |
|-----------|----------|-----------|----------|
| ===== | | | |
| _____ | | _____ | |
| _____ | | _____ | |
| _____ | | _____ | |
| _____ | | _____ | |
| _____ | | _____ | |

Action:

1. Qualify all TIC results for which there is presumptive evidence of a match (e.g. greater than or equal to 85% match) as tentatively identified (NJ), with approximated concentrations. TICs labeled "unknown" are qualified as estimated (J).
2. General actions related to the review of TIC results are as follows:
 - a. If it is determined that a tentative identification of a non-target compound is unacceptable, change the tentative identification to "unknown" or another appropriate identification, and qualify the result as estimated (J).
 - b. If all contractually-required peaks were not library searched and quantitated, the Region's designated representative may request these data from the laboratory.
3. In deciding whether a library search result for a TIC represents a reasonable identification, use professional judgment. If there is more than one possible match, report the result as "either compound X or compound Y". If there is a lack of isomer specificity, change the TIC result to a nonspecific isomer result (e.g., 1,3,5-trimethyl benzene to trimethyl benzene).

DATA REVIEW WORKSHEETS

- isomer) or to a compound class (e.g., 2-methyl, 3-ethyl benzene to a substituted aromatic compound).
4. The reviewer may elect to report all similar compounds as a total (e.g., all alkanes may be summarized and reported as total hydrocarbons).
 5. Target compounds from other fractions and suspected laboratory contaminants should be marked as "non-reportable".
 6. Other Case factors may influence TIC judgments. If a sample TIC match is poor, but other samples have a TIC with a valid library match, similar RRT, and the same ions, infer identification information from the other sample TIC results.
 7. Note in the Data Review Narrative any changes made to the reported data or any concerns regarding TIC identifications.
 8. Note, for Contract Laboratory COR action, failure to properly evaluate and report TICs

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

SAMPLE QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLS)

Action:

1. If any discrepancies are found, the Region's designated representative may contact the laboratory to obtain additional information that could resolve any differences. If a discrepancy remains unresolved, the reviewer must use professional judgment to decide which value is the most accurate. Under these circumstances, the reviewer may determine that qualification of data is warranted. Note in the Data Review Narrative a description of the reasons for data qualification and the qualification that is applied to the data.
2. For non-aqueous samples, in the percent moisture is less than 70.0%, no qualification of the data is necessary. If the percent moisture is greater than or equal to 70.0% and less than 90.0%, qualify detects as estimated (J) and non-detects as approximated (UJ). If the percent moisture is greater than or equal to 90.0%, qualify detects as estimated (J) and non-detects as unusable (R) (see Table below).
3. Note, for Contract Laboratory COR action, numerous or significant failures to accurately quantify the target compounds or to properly evaluate and adjust CRQLs.
4. Results between MDL and CRQL should be qualified as estimated "J".
5. Results < MDL should be reported at the CRQL and qualified "U". MDLs themselves are not reported.

Table. Percent Moisture Actions for Low/Medium Volatiles Analysis for Non-Aqueous Samples

| Criteria | Action | |
|--------------------------|-------------------------------|-----------------------------------|
| | Detected Associated Compounds | Non-detected Associated Compounds |
| % Moisture < 70.0 | No qualification | |
| 70.0 < % Moisture < 90.0 | J | UJ |
| % Moisture > 90.0 | J | R |

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

Sample ID

JC16038-1

Freon 113

RF = 0.279

[J] = (38214)(50)/(0.279)(227356) = 30.12 ppb Ok

DATA REVIEW WORKSHEETS

B. Percent Solids

List samples which have $\geq 70\%$ solids

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below _____

QUANTITATION LIMITS

A. Dilution performed

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below _____

OTHER ISSUES

A. System Performance

List samples qualified based on the degradation of system performance during simple analysis:

| Sample ID | Comments | Actions |
|-----------|--|---------|
| | | |
| | No degradation of system performance observed. | |
| | | |
| | | |

Action:

Use professional judgment to qualify the data if it is determined that system performance has degraded during sample analyses. Inform the Contract Laboratory Program COR any action as a result of degradation of system performance which significantly affected the data.

B. Overall Assessment of Data

List samples qualified based on other issues:

| Sample ID | Comments | Actions |
|-----------|--|---------|
| | | |
| | No additional issues observed that require qualification of the data. Results are valid and can be used for decision purposes. | |
| | | |

Action:

1. Use professional judgment to determine if there is any need to qualify data which were not qualified based on the Quality Control (QC) criteria previously discussed.
2. Write a brief narrative to give the user an indication of the analytical limitations of the data. Inform the Contract Laboratory COR the action, any inconsistency of the data with the Sample Delivery Group (SDG) Narrative. If sufficient information on the intended use and required quality of the data is available, the reviewer should include their assessment of the usability of the data within the given context. This may be used as part of a formal Data Quality Assessment (DQA).

EXECUTIVE NARRATIVE

SDG No: **JC16038** Laboratory: **Accutest, New Jersey**
Analysis: **SW846-8270D** Number of Samples: **9**
Location: **BMSMC, Former Tank Farm Area**
Humacao, PR

SUMMARY: Eight (8) groundwater samples and one (1) field blank were analyzed for the ABN TCL list following method SW846-8270D; Naphthalene and 1,4-Dioxane were also analyzed by SW846-8270D using the selective ion monitoring (SIM) technique. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: EPA Hazardous Waste Support Section, SOP HW-35A, July 2015 – Revision 0. *Semivolatile Data Validation*. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

Results are valid and can be used for decision making purposes.

Critical issues: None
Major: None
Minor: 1. Closing calibration verification not included in date package. None of the results were qualified, professional judgment.
2. Several analytes did not meet the method required criteria for % difference in the continuing calibration verification, but were within the validation guidance document %D required criteria. No action taken.
3. bis(2-ethylhexyl)phthalate detected in the field blank at a concentration of 1.2 ug/L. No action taken, professional judgment.
4. % recovery for 2-Fluorobiphenyl (surrogate) outside laboratory control limits due to dilution. No action taken, professional judgment.
5. 1,4-Dioxane MS/MSD % recovery outside the laboratory control limits. No action taken, high level of sample relative to amount spiked.
6. Results for 2-methylnaphthalene and naphthalene qualified as estimated (J) in samples JC16038-5 and JC16038-6, RPD outside the required criteria (< 50 %) in the field duplicate.

Critical findings: None
Major findings: None
Minor findings: None

COMMENTS: Results are valid and can be used for decision making purposes.

Reviewers Name: Rafael Infante
Chemist License 1888

Signature:



Date: April 16, 2016

SAMPLE ORGANIC DATA SAMPLE SUMMARY

Sample ID: JC16038-1

Sample location: BMSMC Building 5 Area

Sampling date: 3/9/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 10 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.0 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 10 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| Phenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 1.0 | ug/L | 1 | - | U | Yes |
| Acenaphthylene | 1.0 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.0 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.0 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.0 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 1.3 | ug/L | 1 | J | UJ | Yes |
| Carbazole | 1.0 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.0 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.0 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.0 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.0 | ug/L | 1 | - | U | Yes |
| Dibenzo(a,h)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 5.0 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Fluorene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobenzene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 10 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 2.0 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Isophorone | 2.0 | ug/L | 1 | - | U | Yes |
| 1-Methylnaphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Nitroaniline | 5.0 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 5.0 | ug/L | 1 | - | U | Yes |
| Naphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| Nitrobenzene | 2.0 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.0 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.0 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 1.0 | ug/L | 1 | - | U | Yes |
| Pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.0 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|------|------|---|---|---|-----|
| Naphthalene | 0.10 | ug/L | 1 | - | U | Yes |
| 1,4-Dioxane | 0.10 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|--------------|--------|-------|-----------------|----------|------------|------------|
|--------------|--------|-------|-----------------|----------|------------|------------|

Sample ID: JC16038-2

Sample location: BMSMC Building 5 Area

Sampling date: 3/9/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 11 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.3 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 11 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| Phenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 1.1 | ug/L | 1 | - | U | Yes |
| Acenaphthylene | 1.1 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.1 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.3 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| Carbazole | 1.1 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.1 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.1 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.1 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.1 | ug/L | 1 | - | U | Yes |
| Dibenzo(a,h)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 5.3 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| Fluorene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorobenzene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 11 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 2.1 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| Isophorone | 2.1 | ug/L | 1 | - | U | Yes |
| 1-Methylnaphthalene | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| Naphthalene | 1.1 | ug/L | 1 | - | U | Yes |
| Nitrobenzene | 2.1 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.1 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.3 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 1.1 | ug/L | 1 | - | U | Yes |
| Pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|------|------|---|---|---|-----|
| Naphthalene | 0.11 | ug/L | 1 | - | U | Yes |
| 1,4-Dioxane | 1.72 | ug/L | 1 | - | - | Yes |

METHOD: 8270D

Analyte Name Result Units Dilution Factor Lab Flag Validation Reportable
 Sample ID: JC16038-3
 Sample location: BMSMC Building 5 Area
 Sampling date: 3/9/2016
 Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 10 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.0 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 10 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| Phenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 0.67 | ug/L | 1 | J | UJ | Yes |
| Acenaphthylene | 1.0 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.0 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.0 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.0 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.0 | ug/L | 1 | - | U | Yes |
| Carbazole | 1.0 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.0 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.0 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution | Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|----------|--------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.0 | ug/L | 1 | | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.0 | ug/L | 1 | | - | U | Yes |
| 2,4-Dinitrotoluene | 1.0 | ug/L | 1 | | - | U | Yes |
| 2,6-Dinitrotoluene | 1.0 | ug/L | 1 | | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.0 | ug/L | 1 | | - | U | Yes |
| Dibenzo(a,h)anthracene | 1.0 | ug/L | 1 | | - | U | Yes |
| Dibenzofuran | 5.0 | ug/L | 1 | | - | U | Yes |
| Di-n-butyl phthalate | 2.0 | ug/L | 1 | | - | U | Yes |
| Di-n-octyl phthalate | 2.0 | ug/L | 1 | | - | U | Yes |
| Diethyl phthalate | 2.0 | ug/L | 1 | | - | U | Yes |
| Dimethyl phthalate | 2.0 | ug/L | 1 | | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.0 | ug/L | 1 | | - | U | Yes |
| Fluoranthene | 1.0 | ug/L | 1 | | - | U | Yes |
| Fluorene | 1.2 | ug/L | 1 | | - | - | Yes |
| Hexachlorobenzene | 1.0 | ug/L | 1 | | - | U | Yes |
| Hexachlorobutadiene | 1.0 | ug/L | 1 | | - | U | Yes |
| Hexachlorocyclopentadiene | 10 | ug/L | 1 | | - | U | Yes |
| Hexachloroethane | 2.0 | ug/L | 1 | | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 1.0 | ug/L | 1 | | - | U | Yes |
| Isophorone | 2.0 | ug/L | 1 | | - | U | Yes |
| 1-Methylnaphthalene | 1.0 | ug/L | 1 | | - | U | Yes |
| 2-Methylnaphthalene | 52.4 | ug/L | 1 | | - | - | Yes |
| 2-Nitroaniline | 5.0 | ug/L | 1 | | - | U | Yes |
| 3-Nitroaniline | 5.0 | ug/L | 1 | | - | U | Yes |
| 4-Nitroaniline | 5.0 | ug/L | 1 | | - | U | Yes |
| Naphthalene | 3.6 | ug/L | 1 | | - | - | Yes |
| Nitrobenzene | 2.0 | ug/L | 1 | | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.0 | ug/L | 1 | | - | U | Yes |
| Nitrosodiphenylamine | 5.0 | ug/L | 1 | | - | U | Yes |
| Phenanthrene | 1.0 | ug/L | 1 | | - | U | Yes |
| Pyrene | 1.0 | ug/L | 1 | | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.0 | ug/L | 1 | | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | | |
|-------------|------|------|---|--|---|---|-----|
| Naphthalene | 3.57 | ug/L | 1 | | - | - | Yes |
| 1,4-Dioxane | 0.10 | ug/L | 1 | | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|--------------|--------|-------|-----------------|----------|------------|------------|
|--------------|--------|-------|-----------------|----------|------------|------------|

Sample ID: JC16038-4

Sample location: BMSMC Building 5 Area

Sampling date: 3/9/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.7 | ug/L | 1 | - | - | Yes |
| 2,4-Dinitrophenol | 11 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.3 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 11 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| Phenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 1.1 | ug/L | 1 | - | U | Yes |
| Acenaphthylene | 1.1 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.1 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.3 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| Carbazole | 1.1 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.1 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.1 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.1 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.1 | ug/L | 1 | - | U | Yes |
| 1,4-Dioxane | 1.0 | ug/L | 1 | - | U | Yes |
| Dibenzo(a,h)anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 5.3 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| Fluorene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorobenzene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 11 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 2.1 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| Isophorone | 2.1 | ug/L | 1 | - | U | Yes |
| 1-Methylnaphthalene | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 0.63 | ug/L | 1 | J | UJ | Yes |
| 2-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 1.1 | ug/L | 1 | - | U | Yes |
| Naphthalene | 2.7 | ug/L | 1 | - | - | Yes |
| Nitrobenzene | 2.1 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.1 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.3 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 1.1 | ug/L | 1 | - | U | Yes |
| Pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|-------|------|---|---|---|-----|
| Naphthalene | 2.48 | ug/L | 1 | - | - | Yes |
| 1,4-Dioxane | 0.734 | ug/L | 1 | - | - | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|--------------|--------|-------|-----------------|----------|------------|------------|
|--------------|--------|-------|-----------------|----------|------------|------------|

Sample ID: JC16038-5

Sample location: BSMC Building 5 Area

Sampling date: 3/9/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 11 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.3 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 11 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| Phenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.3 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 1.1 | ug/L | 1 | - | U | Yes |
| Acenaphthylene | 1.1 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.1 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.1 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.3 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.1 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.1 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| Carbazole | 1.1 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.1 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.1 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.1 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.1 | ug/L | 1 | - | U | Yes |
| Dibenzo(a,h)anthracene | 1.1 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 1.1 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 5.3 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Fluoranthene | 2.1 | ug/L | 1 | - | U | Yes |
| Fluorene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorobenzene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 11 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 2.1 | ug/L | 1 | - | U | Yes |
| Isophorone | 1.1 | ug/L | 1 | - | U | Yes |
| 1-Methylnaphthalene | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 1.1 | ug/L | 1 | - | J | Yes |
| 2-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 5.3 | ug/L | 1 | - | U | Yes |
| Naphthalene | 1.1 | ug/L | 1 | - | J | Yes |
| Nitrobenzene | 2.1 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.1 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.3 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 1.1 | ug/L | 1 | - | U | Yes |
| Pyrene | 1.1 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|-------|------|---|---|---|-----|
| Naphthalene | 0.11 | ug/L | 1 | - | - | Yes |
| 1,4-Dioxane | 0.388 | ug/L | 1 | - | - | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|--------------|--------|-------|-----------------|----------|------------|------------|
|--------------|--------|-------|-----------------|----------|------------|------------|

Sample ID: JC16038-6

Sample location: BSMC Building 5 Area

Sampling date: 3/9/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.2 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 11 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.2 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 10 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| Phenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 0.44 | ug/L | 1 | J | UJ | Yes |
| Acenaphthylene | 1.0 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.1 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.2 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| Carbazole | 1.0 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.1 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.1 | ug/L | 1 | - | U | Yes |
| Dibenzo(a,h)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 1.0 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 5.2 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Fluoranthene | 2.1 | ug/L | 1 | - | U | Yes |
| Fluorene | 0.49 | ug/L | 1 | J | UJ | Yes |
| Hexachlorobenzene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 1.1 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 10 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 2.1 | ug/L | 1 | - | U | Yes |
| Isophorone | 1.0 | ug/L | 1 | - | U | Yes |
| 1-Methylnaphthalene | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 3.4 | ug/L | 1 | - | J | Yes |
| 2-Nitroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| Naphthalene | 2.3 | ug/L | 1 | - | J | Yes |
| Nitrobenzene | 2.1 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.1 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.2 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 0.61 | ug/L | 1 | J | UJ | Yes |
| Pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|-------|------|---|---|---|-----|
| Naphthalene | 0.11 | ug/L | 1 | - | - | Yes |
| 1,4-Dioxane | 0.388 | ug/L | 1 | - | - | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|--------------|--------|-------|-----------------|----------|------------|------------|
|--------------|--------|-------|-----------------|----------|------------|------------|

Sample ID: JC16038-8

Sample location: BMSMC Building 5 Area

Sampling date: 3/8/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.1 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 10 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.1 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.1 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 10 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.1 | ug/L | 1 | - | U | Yes |
| Phenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.1 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.1 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.1 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 1.0 | ug/L | 1 | - | U | Yes |
| Acenaphthylene | 1.0 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.0 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 0.90 | ug/L | 1 | J | UJ | Yes |
| Benzo(a)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.0 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.0 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.1 | ug/L | 1 | - | U | Yes |
| Carbazole | 1.0 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.0 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.0 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.0 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.0 | ug/L | 1 | - | U | Yes |
| 1,4-Dioxane | 2220 | ug/L | 40 | - | - | Yes |
| Dibenzo(a,h)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 5.1 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Fluorene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobenzene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 10 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 2.0 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Isophorone | 2.0 | ug/L | 1 | - | U | Yes |
| 1-Methylnaphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Nitroaniline | 5.1 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.1 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 5.1 | ug/L | 1 | - | U | Yes |
| Naphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| Nitrobenzene | 2.0 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.0 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.1 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 1.0 | ug/L | 1 | - | U | Yes |
| Pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.0 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|------|------|---|---|---|-----|
| Naphthalene | 0.10 | ug/L | 1 | - | U | Yes |
|-------------|------|------|---|---|---|-----|

METHOD: 8270D

Analyte Name Result Units Dilution Factor Lab Flag Validation Reportable

Sample ID: JC16038-9

Sample location: BMSMC Building 5 Area

Sampling date: 3/8/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 10 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.0 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 10 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| Phenol | 2.0 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.0 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 1.0 | ug/L | 1 | - | U | Yes |
| Acenaphthylene | 1.0 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.0 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.0 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.0 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.0 | ug/L | 1 | - | UJ | Yes |
| Carbazole | 1.0 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.0 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.0 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.0 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.0 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.0 | ug/L | 1 | - | U | Yes |
| Dibenzo(a,h)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 5.0 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.0 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 1.2 | ug/L | 1 | J | UJ | Yes |
| Fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Fluorene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobenzene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 10 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 2.0 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Isophorone | 2.0 | ug/L | 1 | - | U | Yes |
| 1-Methylnaphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Nitroaniline | 5.0 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.0 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 5.0 | ug/L | 1 | - | U | Yes |
| Naphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| Nitrobenzene | 2.0 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.0 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.0 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 1.0 | ug/L | 1 | - | U | Yes |
| Pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.0 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|------|------|---|---|---|-----|
| Naphthalene | 0.10 | ug/L | 1 | - | U | Yes |
| 1,4-Dioxane | 0.10 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

Analyte Name Result Units Dilution Factor Lab Flag Validation Reportable

Sample ID: JC16038-10

Sample location: BMSMC Building 5 Area

Sampling date: 3/8/2016

Matrix: Groundwater

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|----------------------------|--------|-------|-----------------|----------|------------|------------|
| 2-Chlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 4-Chloro-3-methyl phenol | 5.2 | ug/L | 1 | - | U | Yes |
| 2,4-Dichlorophenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dimethylphenol | 5.3 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrophenol | 11 | ug/L | 1 | - | U | Yes |
| 4,6-Dinitro-o-cresol | 5.2 | ug/L | 1 | - | U | Yes |
| 2-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 3&4-Methylphenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Nitrophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 4-Nitrophenol | 10 | ug/L | 1 | - | U | Yes |
| Pentachlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| Phenol | 2.1 | ug/L | 1 | - | U | Yes |
| 2,3,4,6-Tetrachlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 2,4,5-Trichlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| 2,4,6-Trichlorophenol | 5.2 | ug/L | 1 | - | U | Yes |
| Acenaphthene | 1.0 | ug/L | 1 | - | U | Yes |
| Acenaphthylene | 1.0 | ug/L | 1 | - | U | Yes |
| Acetophenone | 2.1 | ug/L | 1 | - | U | Yes |
| Anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Atrazine | 1.0 | ug/L | 1 | - | U | Yes |
| Benzaldehyde | 5.2 | ug/L | 1 | - | U | Yes |
| Benzo(a)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(a)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(b)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(g,h,i)perylene | 1.0 | ug/L | 1 | - | U | Yes |
| Benzo(k)fluoranthene | 1.0 | ug/L | 1 | - | U | Yes |
| 4-Bromophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| Butyl benzyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| 1,1'-Biphenyl | 1.1 | ug/L | 1 | - | U | Yes |
| 2-Chloronaphthalene | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chloroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| Carbazole | 1.0 | ug/L | 1 | - | U | Yes |
| Caprolactam | 2.1 | ug/L | 1 | - | U | Yes |
| Chrysene | 1.0 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethoxy)methane | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Chloroethyl)ether | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-----------------------------|--------|-------|-----------------|----------|------------|------------|
| bis(2-Chloroisopropyl)ether | 2.1 | ug/L | 1 | - | U | Yes |
| 4-Chlorophenyl phenyl ether | 2.1 | ug/L | 1 | - | U | Yes |
| 2,4-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 2,6-Dinitrotoluene | 1.0 | ug/L | 1 | - | U | Yes |
| 3,3'-Dichlorobenzidine | 2.1 | ug/L | 1 | - | U | Yes |
| 1,4-Dioxane | 385 | ug/L | 5 | - | - | Yes |
| Dibenzo(a,h)anthracene | 1.0 | ug/L | 1 | - | U | Yes |
| Dibenzofuran | 1.0 | ug/L | 1 | - | U | Yes |
| Di-n-butyl phthalate | 5.2 | ug/L | 1 | - | U | Yes |
| Di-n-octyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Diethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Dimethyl phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| bis(2-Ethylhexyl)phthalate | 2.1 | ug/L | 1 | - | U | Yes |
| Fluoranthene | 2.1 | ug/L | 1 | - | U | Yes |
| Fluorene | 1.0 | ug/L | 1 | J | UJ | Yes |
| Hexachlorobenzene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorobutadiene | 1.0 | ug/L | 1 | - | U | Yes |
| Hexachlorocyclopentadiene | 10.0 | ug/L | 1 | - | U | Yes |
| Hexachloroethane | 2 | ug/L | 1 | - | U | Yes |
| Indeno(1,2,3-cd)pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| Isophorone | 2.1 | ug/L | 1 | - | U | Yes |
| 2-Methylnaphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| 2-Nitroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| 3-Nitroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| 4-Nitroaniline | 5.2 | ug/L | 1 | - | U | Yes |
| Naphthalene | 1.0 | ug/L | 1 | - | U | Yes |
| Nitrobenzene | 2.1 | ug/L | 1 | - | U | Yes |
| N-Nitroso-di-n-propylamine | 2.1 | ug/L | 1 | - | U | Yes |
| Nitrosodiphenylamine | 5.2 | ug/L | 1 | - | U | Yes |
| Phenanthrene | 1.0 | ug/L | 1 | - | U | Yes |
| Pyrene | 1.0 | ug/L | 1 | - | U | Yes |
| 1,2,4,5-Tetrachlorobenzene | 2.1 | ug/L | 1 | - | U | Yes |

METHOD: 8270D (SIM)

| | | | | | | |
|-------------|------|------|---|---|---|-----|
| Naphthalene | 0.10 | ug/L | 1 | - | - | Yes |
|-------------|------|------|---|---|---|-----|

DATA REVIEW WORKSHEETS

Project Number: JC16038
 Date: March 8-9, 2016
 Shipping Date: March 9-10, 2016
 EPA Region: 2

REVIEW OF SEMIVOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: EPA Hazardous Waste Support Section, SOP HW-35A, July 2015 –Revision 0. *Semivolatile Data Validation*. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

The hardcopied (laboratory name) Accutest data package received has been reviewed and the quality control and performance data summarized. The data review for SVOCs included:

Lab. Project/SDG No.: JC16038 Sample matrix: Groundwater
 No. of Samples: 9_Full_scan/9_SIM

Trip blank No.: -

Field blank No.: JC16038-9

Equipment blank No.: -

Field duplicate No.: JC16038-5/-6 (MW-16/MW-16D)

| | |
|---|---|
| <input checked="" type="checkbox"/> Data Completeness | <input checked="" type="checkbox"/> Laboratory Control Spikes |
| <input checked="" type="checkbox"/> Holding Times | <input checked="" type="checkbox"/> Field Duplicates |
| <input checked="" type="checkbox"/> GC/MS Tuning | <input checked="" type="checkbox"/> Calibrations |
| <input checked="" type="checkbox"/> Internal Standard Performance | <input checked="" type="checkbox"/> Compound Identifications |
| <input checked="" type="checkbox"/> Blanks | <input checked="" type="checkbox"/> Compound Quantitation |
| <input checked="" type="checkbox"/> Surrogate Recoveries | <input checked="" type="checkbox"/> Quantitation Limits |
| <input checked="" type="checkbox"/> Matrix Spike/Matrix Spike Duplicate | |

Overall Comments: ABN TCL list by method SW846-8270D; Naphthalene and 1,4-Dioxane analyzed by method SW846-8270D (SIM)

Definition of Qualifiers:

J- Estimated results
 U- Compound not detected
 R- Rejected data
 UJ- Estimated nondetect

Reviewer: Rafael Defaut
 Date: April 16, 2016

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION

DATE LAB. CONTACTED

DATE RECEIVED

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below _____

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

| SAMPLE ID | DATE SAMPLED | DATE EXTRACTED/ANALYZED | pH | ACTION |
|--|--------------|-------------------------|----|--------|
| | | | | |
| All samples extracted and analyzed within method recommended holding time. | | | | |
| | | | | |
| | | | | |

Cooler temperature (Criteria: $4 \pm 2^{\circ}\text{C}$): 3.6°C

Actions

Results will be qualified based on the criteria of the following Table:

Table 1. Holding Time Actions for Semivolatile Analyses

| Matrix | Preserved | Criteria | Action | |
|-------------|-----------|--|-------------------------------|-----------------------------------|
| | | | Detected Associated Compounds | Non-Detected Associated Compounds |
| Aqueous | No | ≤ 7 days (for extraction) ≤ 40 days (for analysis) | Use professional judgment | |
| | No | > 7 days (for extraction) > 40 days (for analysis) | J | Use professional judgment |
| | Yes | ≤ 7 days (for extraction) ≤ 40 days (for analysis) | No qualification | |
| | Yes | > 7 days (for extraction) > 40 days (for analysis) | J | UJ |
| | Yes/No | Grossly Exceeded | J | UJ or R |
| Non-Aqueous | No | ≤ 14 days (for extraction) ≤ 40 days (for analysis) | Use professional judgment | |
| | No | > 14 days (for extraction) > 40 days (for analysis) | J | Use professional judgment |
| | Yes | ≤ 14 days (for extraction) ≤ 40 days (for analysis) | No qualification | |
| | Yes | > 14 days (for extraction) > 40 days (for analysis) | J | UJ |
| | Yes/No | Grossly Exceeded | J | UJ or R |

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met see below _____

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

X The DFTPP performance results were reviewed and found to be within the specified criteria.

X DFTPP tuning was performed for every 12 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

Notes: These requirements do not apply when samples are analyzed by the Selected Ion Monitoring (SIM) technique.

All mass spectrometer conditions must be identical to those used during the sample analysis. Background subtraction actions resulting in spectral distortion are unacceptable

Notes: No data should be qualified based of DFTPP failure.

The requirement to analyze the instrument performance check solution is optional when analysis of PAHs/pentachlorophenol is to be performed by the SIM technique.

List _____ the _____ samples _____ affected:

Actions:

1. If sample are analyzed without a preceding valid instrument performance check or are analyzed 12 hours after the Instrument Performance Check, qualify all data in those samples as unusable (R).
2. If ion abundance criteria are not met, use professional judgment to determine to what extent the data may be utilized.
3. State in the Data Review Narrative, decisions to use analytical data associated with DFTPP instrument performance checks not meeting the contract requirements.
4. Use professional judgment to determine if associated data should be qualified based on the spectrum of the mass calibration compounds.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

INITIAL CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration: 02/01/2016 (SIM)

Instrument ID numbers: GCMS4P

Matrix/Level: Aqueous/low

Date of initial calibration: 01/30/16; 02/01/16 (Scan)

Instrument ID numbers: GCMSF

Matrix/Level: Aqueous/low

Date of initial calibration: 02/24/16; 03/02/16 (Scan)

Instrument ID numbers: GCMSP

Matrix/Level: Aqueous/low

| DATE | LAB FILE ID# | CRITERIA OUT RFs, %RSD, %D, r | COMPOUND | SAMPLES AFFECTED |
|--|--------------|-------------------------------|----------|------------------|
| | | | | |
| | | | | |
| Initial calibration meets the required criteria. | | | | |
| | | | | |
| | | | | |

Actions:

Qualify the initial calibration analytes listed in Table 2 using the following criteria:

Table 3. Initial Calibration Actions for Semivolatile Analysis

| Criteria | Action | |
|---|--------------------------------------|--------------------------------|
| | Detect | Non-detect |
| Initial Calibration not performed at specified frequency and sequence | Use professional judgment R | Use professional judgment R |
| Initial Calibration not performed at the specified concentrations | J | UJ |
| RRF < Minimum RRF in Table 2 for target analyte | Use professional judgment J+ or R | R |
| RRF ≥ Minimum RRF in Table 2 for target analyte | No qualification | No qualification |
| %RSD > Maximum %RSD in Table 2 for target analyte | J | Use professional judgment |
| %RSD ≤ Maximum %RSD in Table 2 for target analyte | No qualification | No qualification |

DATA REVIEW WORKSHEETS

Initial Calibration

Table 2. RRF, %RSD, and %D Acceptance Criteria in Initial Calibration and CCV for Semivolatil Analysis

| Analyte | Minimum RRF | Maximum %RSD | Opening Maximum %D ¹ | Opening Maximum %D ¹ |
|-------------------------------|-------------|--------------|---------------------------------|---------------------------------|
| 1,4-Dioxane | 0.010 | 40.0 | ± 40.0 | ± 50.0 |
| Benzaldehyde | 0.100 | 40.0 | ± 40.0 | ± 50.0 |
| Phenol | 0.080 | 20.0 | ± 20.0 | ± 25.0 |
| Bis(2-chloroethyl)ether | 0.100 | 20.0 | ± 20.0 | ± 25.0 |
| 2-Chlorophenol | 0.200 | 20.0 | ± 20.0 | ± 25.0 |
| 2-Methylphenol | 0.010 | 20.0 | ± 20.0 | ± 25.0 |
| 3-Methylphenol | 0.010 | 20.0 | ± 20.0 | ± 25.0 |
| 2,2'-Oxybis-(1-chloropropane) | 0.010 | 20.0 | ± 25.0 | ± 50.0 |
| Acetophenone | 0.060 | 20.0 | ± 20.0 | ± 25.0 |
| 4-Methylphenol | 0.010 | 20.0 | ± 20.0 | ± 25.0 |
| N-Nitroso-di-n-propylamine | 0.080 | 20.0 | ± 25.0 | ± 25.0 |
| Hexachloroethane | 0.100 | 20.0 | ± 20.0 | ± 25.0 |
| Nitrobenzene | 0.090 | 20.0 | ± 20.0 | ± 25.0 |
| Isophorone | 0.100 | 20.0 | ± 20.0 | ± 25.0 |
| 2-Nitrophenol | 0.060 | 20.0 | ± 20.0 | ± 25.0 |
| 2,4-Dimethylphenol | 0.050 | 20.0 | ± 25.0 | ± 50.0 |
| Bis(2-chloroethoxy)methane | 0.080 | 20.0 | ± 20.0 | ± 25.0 |
| 2,4-Dichlorophenol | 0.060 | 20.0 | ± 20.0 | ± 25.0 |
| Naphthalene | 0.200 | 20.0 | ± 20.0 | ± 25.0 |
| 4-Chloroaniline | 0.010 | 40.0 | ± 40.0 | ± 50.0 |
| Hexachlorobutadiene | 0.040 | 20.0 | ± 20.0 | ± 25.0 |
| Caprolactam | 0.010 | 40.0 | ± 30.0 | ± 50.0 |
| 4-Chloro-3-methylphenol | 0.040 | 20.0 | ± 20.0 | ± 25.0 |
| 2-Methylnaphthalene | 0.100 | 20.0 | ± 20.0 | ± 25.0 |
| Hexachlorocyclopentadiene | 0.010 | 40.0 | ± 40.0 | ± 50.0 |
| 2,4,6-Trichlorophenol | 0.090 | 20.0 | ± 20.0 | ± 25.0 |
| 2,4,5-Trichlorophenol | 0.100 | 20.0 | ± 20.0 | ± 25.0 |
| 1,1'-Biphenyl | 0.200 | 20.0 | ± 20.0 | ± 25.0 |

DATA REVIEW WORKSHEETS

| Analyte | Minimum RRF | Maximum %RSD | Opening Maximum %D ¹ | Opening Maximum %D ¹ |
|----------------------------|-------------|--------------|---------------------------------|---------------------------------|
| 2-Chloronaphthalene | 0.300 | 20.0 | + 20.0 | + 25.0 |
| 2-Nitroaniline | 0.060 | 20.0 | + 25.0 | + 25.0 |
| Dimethylphthalate | 0.300 | 20.0 | + 25.0 | + 25.0 |
| 2,6-Dinitrotoluene | 0.080 | 20.0 | + 20.0 | + 25.0 |
| Acenaphthylene | 0.400 | 20.0 | + 20.0 | + 25.0 |
| 3-Nitroaniline | 0.010 | 20.0 | + 25.0 | + 50.0 |
| Acenaphthene | 0.200 | 20.0 | + 20.0 | + 25.0 |
| 2,4-Dinitrophenol | 0.010 | 40.0 | + 50.0 | + 50.0 |
| 4-Nitrophenol | 0.010 | 40.0 | + 40.0 | + 50.0 |
| Dibenzofuran | 0.300 | 20.0 | + 20.0 | + 25.0 |
| 2,4-Dinitrotoluene | 0.070 | 20.0 | + 20.0 | + 25.0 |
| Diethylphthalate | 0.300 | 20.0 | + 20.0 | + 25.0 |
| 1,2,4,5-Tetrachlorobenzene | 0.100 | 20.0 | + 20.0 | + 25.0 |
| 4-Chlorophenyl-phenylether | 0.100 | 20.0 | + 20.0 | + 25.0 |
| Fluorene | 0.200 | 20.0 | + 20.0 | + 25.0 |
| 4-Nitroaniline | 0.010 | 40.0 | + 40.0 | + 50.0 |
| 4,6-Dinitro-2-methylphenol | 0.010 | 40.0 | + 30.0 | + 50.0 |
| 4-Bromophenyl-phenyl ether | 0.070 | 20.0 | + 20.0 | + 25.0 |
| N-Nitrosodiphenylamine | 0.100 | 20.0 | + 20.0 | + 25.0 |
| Hexachlorobenzene | 0.050 | 20.0 | + 20.0 | + 25.0 |
| Atrazine | 0.010 | 40.0 | + 25.0 | + 50.0 |
| Pentachlorophenol | 0.010 | 40.0 | + 40.0 | + 50.0 |
| Phenanthrene | 0.200 | 20.0 | + 20.0 | + 25.0 |
| Anthracene | 0.200 | 20.0 | + 20.0 | + 25.0 |
| Carbazole | 0.050 | 20.0 | + 20.0 | + 25.0 |
| Di-n-butylphthalate | 0.500 | 20.0 | + 20.0 | + 25.0 |
| Fluoranthene | 0.100 | 20.0 | + 20.0 | + 25.0 |
| Pyrene | 0.400 | 20.0 | + 25.0 | + 50.0 |
| Butylbenzylphthalate | 0.100 | 20.0 | + 25.0 | + 50.0 |

DATA REVIEW WORKSHEETS

| Analyte | Minimum RRF | Maximum %RSD | Opening Maximum %D ¹ | Opening Maximum %D ¹ |
|-----------------------------|-------------|--------------|---------------------------------|---------------------------------|
| 3,3'-Dichlorobenzidine | 0.010 | 40.0 | ± 40.0 | ± 50.0 |
| Benzo(a)anthracene | 0.300 | 20.0 | ± 20.0 | ± 25.0 |
| Chrysene | 0.200 | 20.0 | ± 20.0 | ± 50.0 |
| Bis(2-ethylhexyl) phthalate | 0.200 | 20.0 | ± 25.0 | ± 50.0 |
| Di-n-octylphthalate | 0.010 | 40.0 | ± 40.0 | ± 50.0 |
| Benzo(b)fluoranthene | 0.010 | 20.0 | ± 25.0 | ± 50.0 |
| Benzo(k)fluoranthene | 0.010 | 20.0 | ± 25.0 | ± 50.0 |
| Benzo(a)pyrene | 0.010 | 20.0 | ± 20.0 | ± 50.0 |
| Indeno(1,2,3-cd)pyrene | 0.010 | 20.0 | ± 25.0 | ± 50.0 |
| Dibenzo(a,h)anthracene | 0.010 | 20.0 | ± 25.0 | ± 50.0 |
| Benzo(g,h,i)perylene | 0.010 | 20.0 | ± 30.0 | ± 50.0 |
| 2,3,4,6-Tetrachlorophenol | 0.040 | 20.0 | ± 20.0 | ± 50.0 |
| Naphthalene | 0.600 | 20.0 | ± 25.0 | ± 25.0 |
| 2-Methylnaphthalene | 0.300 | 20.0 | ± 20.0 | ± 25.0 |
| Acenaphthylene | 0.900 | 20.0 | ± 20.0 | ± 25.0 |
| Acenaphthene | 0.500 | 20.0 | ± 20.0 | ± 25.0 |
| Fluorene | 0.700 | 20.0 | ± 25.0 | ± 50.0 |
| Phenanthrene | 0.300 | 20.0 | ± 25.0 | ± 50.0 |
| Anthracene | 0.400 | 20.0 | ± 25.0 | ± 50.0 |
| Fluoranthene | 0.400 | 20.0 | ± 25.0 | ± 50.0 |
| Pyrene | 0.500 | 20.0 | ± 30.0 | ± 50.0 |
| Benzo(a)anthracene | 0.400 | 20.0 | ± 25.0 | ± 50.0 |
| Chrysene | 0.400 | 20.0 | ± 25.0 | ± 50.0 |
| Benzo(b)fluoranthene | 0.100 | 20.0 | ± 30.0 | ± 50.0 |
| Benzo(k)fluoranthene | 0.100 | 20.0 | ± 30.0 | ± 50.0 |
| Benzo(a)pyrene | 0.100 | 20.0 | ± 25.0 | ± 50.0 |
| Indeno(1,2,3-cd)pyrene | 0.100 | 20.0 | ± 40.0 | ± 50.0 |
| Dibenzo(a,h)anthracene | 0.010 | 25.0 | ± 40.0 | ± 50.0 |
| Benzo(g,h,i)perylene | 0.020 | 25.0 | ± 40.0 | ± 50.0 |

DATA REVIEW WORKSHEETS

| Pentachlorophenol | 0.010 | 40.0 | ± 50.0 | ± 50.0 |
|---|-------------|--------------|---------------------------------|--------------------|
| Deuterated Monitoring Compounds | | | | |
| Analyte | Minimum RRF | Maximum %RSD | Opening Maximum %D ¹ | Closing Maximum %D |
| 1,4-Dioxane-d ₈ | 0.010 | 20.0 | ± 25.0 | ± 50.0 |
| Phenol-d ₅ | 0.010 | 20.0 | ± 25.0 | ± 25.0 |
| Bis-(2-chloroethyl)ether-d ₈ | 0.100 | 20.0 | ± 20.0 | ± 25.0 |
| 2-Chlorophenol-d ₁ | 0.200 | 20.0 | ± 20.0 | ± 25.0 |
| 4-Methylphenol-d ₈ | 0.010 | 20.0 | ± 20.0 | ± 25.0 |
| 4-Chloroaniline-d ₃ | 0.010 | 40.0 | ± 40.0 | ± 50.0 |
| Nitrobenzene-d ₅ | 0.050 | 20.0 | ± 20.0 | ± 25.0 |
| 2-Nitrophenol-d ₁ | 0.050 | 20.0 | ± 20.0 | ± 25.0 |
| 2,4-Dichlorophenol-d ₃ | 0.060 | 20.0 | ± 20.0 | ± 25.0 |
| Dimethylphthalate-d ₆ | 0.300 | 20.0 | ± 20.0 | ± 25.0 |
| Acenaphthylene-d ₈ | 0.400 | 20.0 | ± 20.0 | ± 25.0 |
| 4-Nitrophenol-d ₁ | 0.010 | 40.0 | ± 40.0 | ± 50.0 |
| Fluorene-d ₁₀ | 0.100 | 20.0 | ± 20.0 | ± 25.0 |
| 4,6-Dinitro-2-methylphenol-d ₂ | 0.010 | 40.0 | ± 30.0 | ± 50.0 |
| Anthracene-d ₁₀ | 0.300 | 20.0 | ± 20.0 | ± 25.0 |
| Pyrene-d ₁₀ | 0.300 | 20.0 | ± 25.0 | ± 50.0 |
| Benzo(a)pyrene-d ₁₂ | 0.010 | 20.0 | ± 20.0 | ± 50.0 |
| Fluoranthene-d ₁₀ (SIM) | 0.400 | 20.0 | ± 25.0 | ± 50.0 |
| 2-Methylnaphthalene-d ₁₀ (SIM) | 0.300 | 20.0 | ± 20.0 | ± 25.0 |

¹ If a closing CCV is acting as an opening CCV, all target analytes must meet the requirements for an opening CCV.

Note: If analysis by SIM technique is requested for PAH/pentachlorophenols, calibration standards analyzed at 0.10, 0.20, 0.40, 0.80, and 1.0 ng/uL for each target compound of interest and the associated DMCs. Pentachlorophenol will require only a four point initial calibration at 0.20, 0.40, 0.80, and 1.0 ng/uL.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met _____
 and/or see below _____

CONTINUING CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration: 02/01/16 (SIM) 02/24/16; 03/02/16 (Scan)
 Date of initial calibration verification (CCV): 02/01/16 02/24/16; 03/02/16
 Date of continuing calibration verification (CCV): 03/16/16 03/16/16
 Date of closing CCV: - -
 Instrument ID numbers: GCMS4P GCMSP
 Matrix/Level: Aqueous/low -

Date of initial calibration: 01/30/16; 02/01/16 (SIM)
 Date of initial calibration verification (CCV): 01/30/16; 02/01/16
 Date of continuing calibration verification (CCV): 03/15/16
 Date of closing CCV: -
 Instrument ID numbers: GCMSF
 Matrix/Level: Aqueous/low

| DATE | LAB FILE ID# | CRITERIA OUT RFs, %RSD, %D, r | COMPOUND | SAMPLES AFFECTED |
|----------|--------------|-------------------------------|----------------------|------------------|
| MSF | | | | |
| 03/15/16 | cc6483-25 | -20.9 | Caprolactam | |
| | | -22.4 | 2-Nitroaniline | |
| | | -45.1 | 2,4-Dinitrophenol | |
| | | -29.3 | 4,6-Dinitro-o-cresol | |
| MSP | | | | |
| 03/16/15 | cc4524-50 | -20.3 | Caprolactam | |
| | | -21.4 | 2-Nitroaniline | |
| | cc4514-50 | 20.6 | Benzaldehyde | |
| 03/17/16 | cc4524-25 | -25.6 | Caprolactam | |
| | | -20.4 | 2-Nitroaniline | |

Note: Continuing calibration verifications %D outside the method criteria but within the guidance document %D required criteria. No closing calibration verification included in data package. No action taken, professional judgment

Actions:

Notes: Verify that the CCV is run at the required frequency (an opening and closing CCV must be run within 12-hour period).

DATA REVIEW WORKSHEETS

All DMCs must meet the RRF values given in Table 2. No qualification of the data is necessary on DMCs RRF and %RSD/%D alone. Use professional judgment to evaluate DMCs and %RSD/%D data in conjunction with DMCs recoveries to determine the need for qualification of the data.

Qualify the initial calibration analytes listed in Table 2 using the following criteria in the CCVs:

Table 4. CCV Actions for Semivolatile Analysis

| Criteria for Opening CCV | Criteria for Closing CCV | Action | |
|---|---|-------------------------------------|--------------------------------|
| | | Detect | Non-detect |
| CCV not performed at required frequency and sequence | CCV not performed at required frequency | Use professional judgment R | Use professional judgment R |
| CCV not performed at specified concentration | CCV not performed at specified concentration | Use professional judgment | Use professional judgment |
| RRF < Minimum RRF in Table 2 for target analyte | RRF < Minimum RRF in Table 2 for target analyte | Use professional judgment J or R | R |
| RRF ≥ Minimum RRF in Table 2 for target analyte | RRF ≥ Minimum RRF in Table 2 for target analyte | No qualification | No qualification |
| %D outside the Opening Maximum %D limits in Table 2 for target analyte | %D outside the Closing Maximum %D limits in Table 2 for target analyte | J | UJ |
| %D within the inclusive Opening Maximum %D limits in Table 2 for target analyte | %D within the inclusive Closing Maximum %D limits in Table 2 for target analyte | No qualification | No qualification |

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Notes: The concentration of non-target compounds in all blanks must be less than or equal to 10 ug/L.

The concentration of target compounds in all blanks must be less than its CRQL listed in the method.

Samples taken from a drinking water tap do not have and associated field blank.

Laboratory blanks

| DATE ANALYZED | LAB ID | LEVEL/MATRIX | COMPOUND | CONCENTRATION UNITS |
|---|--------|--------------|----------|---------------------|
| _No_target_analytes_detected_in_method_blanks._ | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Field/Equipment/Trip blank

| DATE ANALYZED | LAB ID | LEVEL/MATRIX | COMPOUND | CONCENTRATION UNITS |
|--|------------|--------------|-----------------------------|---------------------|
| _No_equipment/trip_blanks_analyzed_with_this_data_package._No_target_analyte_detected_in_the_field_blank_except_for_the following: | | | | |
| _03/15/16 | _JC16038-9 | _Aqueous/low | _bis(2-Ethylhexyl)phthalate | _1.2 ug/L |
| | | | | |
| | | | | |
| | | | | |

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Qualify samples based on the criteria summarized in Table 5:

Table 5. Blank and TCLP/SPLP LEB Actions for Semivolatile Analysis

| Blank Type | Blank Result | Sample Result | Action |
|------------------------------------|---|---------------------------|---|
| Method, TCLP/SPLP LEB, Field | Detect | Non-detect | No qualification |
| | < CRQL | < CRQL | Report at CRQL and qualify as non-detect (U) |
| | | ≥ CRQL | Use professional judgment |
| | ≥ CRQL | < CRQL | Report at CRQL and qualify as non-detect (U) |
| | | ≥ CRQL but < Blank Result | Report at sample results and qualify as non-detect (U) or as unusable (R) |
| | | ≥ CRQL and ≥ Blank Result | Use professional judgment |
| | Grossly high | Detect | Report at sample results and qualify as unusable (R) |
| | TIC > 5.0 ug/L (water) or 0.0050 mg/L (TCLP leachate) or TIC > 170 ug/Kg (soil) | Detect | Use professional judgment |

List samples qualified

| CONTAMINATION SOURCE/LEVEL | COMPOUND | CONC/UNITS | AL/UNITS | SQL | AFFECTED SAMPLES |
|----------------------------|----------|------------|----------|-----|------------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

SURROGATE SPIKE RECOVERIES – DEUTERATED MONITORING COMPOUNDS (DMCs)

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries – deuterated monitoring compounds. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

Notes: Recoveries for DMCs in samples and blanks must be within the limits specified in Table 6.

The recovery limits for any of the compounds listed in Table 6 may be expanded at any time during the period of performance if USEPA determines that the limits are too restrictive.

If a DMC is not added in the samples and blanks or the concentrations of DMCs in the samples and blank not the specified, use professional judgment in qualifying the data.

Table 7. DMC Actions for Semivolatile Analysis

| Criteria | Action | |
|---|------------------|------------------|
| | Detect | Non-detect |
| %R < 10% (excluding DMCs with 10% as a lower acceptance limit) | J- | R |
| 10% ≤ %R (excluding DMCs with 10% as a lower acceptance limit) < Lower Acceptance Limit | J- | UJ |
| Lower Acceptance limit ≤ %R ≤ Upper Acceptance Limit | No qualification | No qualification |
| %R > Upper Acceptance Limit | J+ | No qualification |

List the percent recoveries (%Rs) which do not meet the criteria for DMCs (surrogate) recovery.

Matrix: _____

| SAMPLE ID | SURROGATE COMPOUND | ACTION |
|---|---|-----------|
| DMCs meet the required criteria. Non-deuterated surrogates added to the samples _____ within laboratory recovery limits except for the following: | | |
| JC16038-8 | 2-Fluorobiphenyl (120%; control limit 35-118) | No action |
| | | |
| | | |

DATA REVIEW WORKSHEETS

Note: % recovery for Phenol-d5 outside the laboratory control limits but within the guidance document required criteria.

Table 8. Semivolatile DMCs and the Associated Target Analytes

| 1,4-Dioxane-d₈ (DMC-1) | Phenol-d₅ (DMC-2) | Bis(2-Chloroethyl) ether-d₈ (DMC-3) |
|--|---|--|
| 1,4-Dioxane | Benzaldehyde Phenol | Bis(2-chloroethyl) ether 2,2'-Oxybis(1-chloropropane) Bis(2-chloroethoxy) methane |
| 2-Chlorophenol-d₄ (DMC-4) | 4-Methylphenol-d₄ (DMC-5) | 4-Chloroaniline-d₄ (DMC-6) |
| 2-Chlorophenol | 2-Methylphenol 3-Methylphenol 4-Methylphenol 2,4-Dimethylphenol | 4-Chloroaniline Hexachlorocyclopentadiene Dichlorobenzidine |
| Nitrobenzene-d₅ (DMC-7) | 2-Nitrophenol-d₄ (DMC-8) | 2,4-Dichlorophenol-d₃ (DMC-9) |
| Acetophenone N-Nitroso-di-n-propylamine Hexachloroethane Nitrobenzene 2,6-Dinitrotoluene 2,4-Dinitrotoluene N-Nitrosodiphenylamine | Isophorone 2-Nitrophenol | 2,4-Dichlorophenol Hexachlorobutadiene Hexachlorocyclopentadiene 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 1,2,4,5-Tetrachlorobenzene *Pentachlorophenol 2,3,4,6-Tetrachlorophenol |
| Dimethylphthalate-d₈ (DMC-10) | Acenaphthylene-d₈ (DMC-11) | 4-Nitrophenol-d₄ (DMC-12) |
| Caprolactam 1,1'-Biphenyl Dimethylphthalate Diethylphthalate Di-n-butylphthalate Butylbenzylphthalate Bis(2-ethylhexyl) phthalate Di-n-octylphthalate | *Naphthalene *2-Methylnaphthalene 2-Chloronaphthalene *Acenaphthylene *Acenaphthene | 2-Nitroaniline 3-Nitroaniline 2,4-Dinitrophenol 4-Nitrophenol 4-Nitroaniline |

DATA REVIEW WORKSHEETS

| | | |
|---|--|---|
| Fluorene-d₁₀ (DMC-13) | 4,6-Dinitro-2-methylphenol-d₂ (DMC-14) | Anthracene-d₁₀ (DMC-15) |
| Dibenzofuran *Fluorene 4-Chlorophenyl-phenylether 4-Bromophenyl-phenylether Carbazole | 4,6-Dinitro-2-methylphenol | Hexachlorobenzene Atrazine *Phenanthrene *Anthracene |
| Pyrene-d₁₀ (DMC-16) | Benzo(a)pyrene-d₁₂ (DMC-17) | |
| *Fluoranthene *Pyrene *Benzo(a)anthracene *Chrysene | 3,3'-Dichlorobenzidine *Benzo(b)fluoranthene *Benzo(k)fluoranthene *Benzo(a)pyrene *Indeno(1,2,3-cd)pyrene *Dibenzo(a,h)anthracene *Benzo(g,h,i)perylene | |

*Included in optional Target Analyte List (TAL) of PAHs and PCP only.

Table 9. Semivolatile SIM DMCs and the Associated Target Analytes

| Fluoranthene-d₁₀ (DMC-1) | 2-Methylnaphthalene-d₁₀ (DMC-2) |
|--|---|
| Fluoranthene | Naphthalene |
| Pyrene | 2-Methylnaphthalene |
| Benzo(a)anthracene | Acenaphthylene |
| Chrysene | Acenaphthene |
| Benzo(b)fluoranthene | Fluorene |
| Benzo(k)fluoranthene | Pentachlorophenol |
| Benzo(a)pyrene | Phenanthrene |
| Indeno(1,2,3-cd)pyrene | Anthracene |
| Dibenzo(a,h)anthracene | |
| Benzo(g,h,i)perylene | |

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below _____

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

NOTES: Data for MS and MSDs will not be present unless requested by the Region.
 Notify the Contract Laboratory COR if a field or trip blank was used for the MS and MSD.

For a Matrix Spike that does not meet criteria, apply the action to only the field sample used to prepare the Matrix Spike sample. If it is clearly stated in the data validation materials that the samples were taken through incremental sampling or some other method guaranteeing the homogeneity of the sample group, then the entire sample group may be qualified.

List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID: JC16090-1
 Sample ID: JC16038-2 (SIM)

Matrix/Level: Groundwater
 Matrix/Level: Groundwater

| MS OR MSD | COMPOUND | % R | RPD | QC LIMITS | ACTION |
|-----------------|--------------------|------------------|-----------|--------------|------------------|
| JC16038-2 (SIM) | | | | | |
| <u>MS/MSD</u> | <u>1,4-dioxane</u> | <u>-37%/-70%</u> | <u>20</u> | <u>- 160</u> | <u>No action</u> |

Note: No action, high level of sample relative to amount spiked.

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 70 – 130 %.

Actions:

| QUALITY | %R < LL | %R > UL |
|--------------------|---------|---------|
| Positive results | J | J |
| Nondetects results | R | Accept |

DATA REVIEW WORKSHEETS

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).

If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).

If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below _____

INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

| DATE | SAMPLE ID | IS OUT | IS AREA | ACCEPTABLE RANGE | ACTION |
|------|-----------|--------|---------|------------------|--------|
|------|-----------|--------|---------|------------------|--------|

Internal standard area counts meet the required criteria.

Action:

1. If an internal standard area count for a sample or blank is greater than 200.0% of the area for the associated standard (opening CCV or mid-point standard from initial calibration) (see Table 10 below):
 - a. Qualify detects for compounds quantitated using that internal standard as estimated low (J-).
 - b. Do not qualify non-detected associated compounds.
2. If an internal standard area count for a sample or blank is less than 20.0% of the area for the associated standard (opening CCV or mid-point standard from initial calibration):
 - a. Qualify detects for compounds quantitated using that internal standard as estimated high (J+).
 - b. Qualify non-detected associated compounds as unusable (R).
3. If an internal standard area count for a sample or blank is greater than or equal to 50.0%, and less than or equal to 200% of the area for the associated standard opening CCV or mid-point standard from initial calibration, no qualification of the data is necessary.
4. If an internal standard RT varies by more than 10.0 seconds: Examine the chromatographic profile for that sample to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Detects should not need to be qualified as unusable (R) if the mass spectral criteria are met.
5. If an internal standard RT varies by less than or equal to 10.0 seconds, no qualification of the data is necessary.

Note: Inform the Contract Laboratory Program Project Officer (CLP PO) if the internal standard performance criteria are grossly exceeded. Note in the Data Review Narrative potential effects on the data resulting from unacceptable internal standard performance.

DATA REVIEW WORKSHEETS

State in the Data Review Narrative if the required internal standard compounds are not added to a sample or blank or if the required internal standard compound is not analyzed at the specified concentration.

Actions:

Table 10. Internal Standard Actions for Semivolatile Analysis

| Criteria | Action | |
|--|------------------|------------------|
| | Detect | Non-detect |
| Area response < 20% of the opening CCV or mid-point standard CS3 from ICAL | J+ | R |
| 20% ≤ Area response < 50% of the opening CCV or mid-point standard CS3 from ICAL | J+ | UJ |
| 50% ≤ Area response ≤ 200% of the opening CCV or mid-point standard CS3 from ICAL | No qualification | No qualification |
| Area response > 200% of the opening CCV or mid-point standard CS3 from ICAL | J- | No qualification |
| RT shift between sample/blank and opening CCV or mid-point standard CS3 from ICAL > 10.0 seconds | R | R |
| RT shift between sample/blank and opening CCV or mid-point standard CS3 from ICAL < 10.0 seconds | No qualification | No qualification |

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

TARGET COMPOUND IDENTIFICATION

Criteria:

Is the Relative Retention Times (RRTs) of reported compounds within ± 0.06 RRT units of the standard RRT [opening Continuing Calibration Verification (CCV) or mid-point standard from the initial calibration]. **Yes? or No?**

List compounds not meeting the criteria described above:

| Sample ID | Compounds | Actions |
|-----------|-----------|---------|
| ===== | ===== | ===== |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

Mass spectra of the sample compound and a current laboratory-generated standard [i.e., the mass spectrum from the associated calibration standard (opening CCV or mid-point standard from initial calibration)] must match according to the following criteria:

- All ions present in the standard mass spectrum at a relative intensity greater than 10% must be present in the sample spectrum.
- The relative intensities of these ions must agree within $\pm 20\%$ between the standard and sample spectra (e.g., for an ion with an abundance of 50% in the standard spectrum, the corresponding sample ion abundance must be between 30-70%).
- Ions present at greater than 10% in the sample mass spectrum, but not present in the standard spectrum, must be evaluated by a reviewer experienced in mass spectral interpretation.

List compounds not meeting the criteria described above:

| Sample ID | Compounds | Actions |
|--|-----------|---------|
| ===== | ===== | ===== |
| _____ | _____ | _____ |
| Identified_compounds_meet_the_required_criteria_____ | _____ | _____ |
| _____ | _____ | _____ |

DATA REVIEW WORKSHEETS

Action:

1. The application of qualitative criteria for GC/MS analysis of target compounds requires professional judgment. It is up to the reviewer's discretion to obtain additional information from the laboratory. If it is determined that incorrect identifications were made, qualify all such data as unusable (R).
2. Use professional judgment to qualify the data if it is determined that cross-contamination has occurred.
3. Note in the Data Review Narrative any changes made to the reported compounds or concerns regarding target compound identifications. Note, for Contract Laboratory COR action, the necessity for numerous or significant changes.

TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

NOTE: Tentatively identified compounds should only be evaluated when requested by a party from outside of the Hazardous Waste Support Section (HWSS).

List TICs

| Sample ID | Compound | Sample ID | Compound |
|-----------|----------|-----------|----------|
| ===== | | ===== | |
| _____ | | _____ | |
| _____ | | _____ | |
| _____ | | _____ | |
| _____ | | _____ | |

Action:

1. Qualify all TIC results for which there is presumptive evidence of a match (e.g. greater than or equal to 85% match) as tentatively identified (NJ), with approximated concentrations. TICs labeled "unknown" are qualified as estimated (J).
2. General actions related to the review of TIC results are as follows:
 - a. If it is determined that a tentative identification of a non-target compound is unacceptable, change the tentative identification to "unknown" or another appropriate identification, and qualify the result as estimated (J).
 - b. If all contractually-required peaks were not library searched and quantitated, the Region's designated representative may request these data from the laboratory.
3. In deciding whether a library search result for a TIC represents a reasonable identification, use professional judgment. If there is more than one possible match, report the result as "either compound X or compound Y". If there is a lack of isomer specificity, change the TIC result to a nonspecific isomer result (e.g., 1,3,5-trimethyl benzene to trimethyl benzene isomer) or to a compound class (e.g., 2-methyl, 3-ethyl benzene to a substituted aromatic compound).
4. The reviewer may elect to report all similar compounds as a total (e.g., all alkanes may be summarized and reported as total hydrocarbons).

DATA REVIEW WORKSHEETS

5. Target compounds from other fractions and suspected laboratory contaminants should be marked as "non-reportable".
6. Other Case factors may influence TIC judgments. If a sample TIC match is poor, but other samples have a TIC with a valid library match, similar RRT, and the same ions, infer identification information from the other sample TIC results.
7. Note in the Data Review Narrative any changes made to the reported data or any concerns regarding TIC identifications.
8. Note, for Contract Laboratory COR action, failure to properly evaluate and report TICs

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

SAMPLE QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLS)

Action:

1. When a sample is analyzed at more than one dilution, the lower CRQL are used unless a QC exceedance dictates the use of higher CRQLs from the diluted sample. Samples reported with an "E" qualifier should be reported from the diluted sample.
2. If any discrepancies are found, the Region's designated representative may contact the laboratory to obtain additional information that could resolve any differences. If a discrepancy remains unresolved, the reviewer must use professional judgment to decide which value is the most accurate. Under these circumstances, the reviewer may determine that qualification of data is warranted. Note in the Data Review Narrative a description of the reasons for data qualification and the qualification that is applied to the data.
3. For non-aqueous samples, if the solids is less than 10.0%, use professional judgment for both detects and non-detects. If the percent solid for a soil sample is greater than or equal to 10.0% and less than 30.0%, use professional judgment to qualify detects and non-detects. If the percent solid for a soil sample is greater than or equal to 30.0%, detects and non-detects should not be qualified (see Table 11).
4. Note, for Contract Laboratory COR action, numerous or significant failures to accurately quantify the target compounds or to properly evaluate and adjust CRQLs.
5. Results between MDL and CRQL should be qualified as estimated "J".
6. Results < MDL should be reported at the CRQL and qualified "U". MDLs themselves should not be reported.

Table 11. Percent Solids Actions for Semivolatile Analysis for Non-Aqueous Samples

| Criteria | Action | |
|-------------------------|---------------------------|---------------------------|
| | Detects | Non-detects |
| %Solids < 10.0% | Use professional judgment | Use professional judgment |
| 10.0% <= %Solid < 30.0% | Use professional judgment | Use professional judgment |
| %Solids > 30.0% | No qualification | No qualification |

SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

Sample ID: JC16038-1 Analyte: 1,4-Dioxane RF: 0.711

$$\begin{aligned}
 [] &= (112855)(40)/(115395)(0.711) \\
 &= 55.0 \text{ ppm} \quad \text{Ok}
 \end{aligned}$$

DATA REVIEW WORKSHEETS

QUANTITATION LIMITS

A. Dilution performed

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met _____
 Criteria were not met _____
 and/or see below X

FIELD DUPLICATE PRECISION

Sample IDs: _____JC16038-5/-6_____ Matrix: _____Groundwater_____

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.

Suggested criteria: if large RPD (> 50 %) is observed, confirm identification of the samples and note differences. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

| COMPOUND | SQL ug/L | SAMPLE CONC. | DUPLICATE CONC. | RPD | ACTION |
|-------------------------|-------------|-----------------|--------------------|-----|---|
| Acenaphthene | 0.29 | ND | 0.44 | - | No action |
| Fluorene | 0.31 | ND | 0.49 | - | No action |
| 2-Methyl naphthalene | 0.30 | ND | 3.4 | - | Qualify the results as estimated (J) in JC16038-5/-6. |
| Naphthalene | 0.30 | ND | 2.3 | - | |
| Phenanthrene | 0.24 | ND | 0.61 | - | No action |

Note: No action taken, professional judgment. Sample and duplicate < 5 SQL.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

OTHER ISSUES

A. System Performance

List samples qualified based on the degradation of system performance during sample analysis:

| Sample ID | Comments | Actions |
|-----------|----------|---------|
| ===== | ===== | ===== |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

Action:

Use professional judgment to qualify the data if it is determined that system performance has degraded during sample analyses. Inform the Contract Laboratory Program COR any action as a result of degradation of system performance which significantly affected the data.

B. Overall Assessment of Data

List samples qualified based on other issues:

| Sample ID | Comments | Actions |
|---|----------|---------|
| ===== | ===== | ===== |
| _____ | _____ | _____ |
| _No other issues that required the need to qualify the data. Results are valid and can be used for decision purposes. | | |
| _____ | _____ | _____ |

Action:

1. Use professional judgment to determine if there is any need to qualify data which were not qualified based on the Quality Control (QC) criteria previously discussed.
2. Write a brief narrative to give the user an indication of the analytical limitations of the data. Inform the Contract Laboratory COR the action, any inconsistency of the data with the Sample Delivery Group (SDG) Narrative. If sufficient information on the intended use and required quality of the data is available, the reviewer should include their assessment of the usability of the data within the given context. This may be used as part of a formal Data Quality Assessment (DQA).
3. Sometimes, due to dilutions, re-analysis or SIM/Scan runs are being performed, there will be multiple results for a single analyte from a single sample. The following criteria and professional judgment are used to determine which result should be reported:
 - The analysis with the lower CRQL
 - The analysis with the better QC results
 - The analysis with the higher results

EXECUTIVE NARRATIVE

SDG No: **JC16038** Laboratory: **Accutest, New Jersey**
Analysis: **SW846-8015C (DAI)** Number of Samples: **10**
Location: **BMSMC, Building 5 Area**
Humacao, PR

SUMMARY: Eight (8) groundwater samples, one field blank, and one trip blank were analyzed for the low molecular weight alcohols (LMWAs) list following method SW846-8015C. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update III, December 1996)," specifically for Methods 8000/8015C are utilized. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

Results are valid and can be used for decision making purposes.

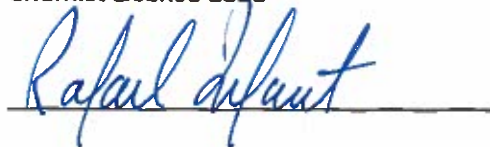
Critical issues: **None**
Major: **None**
Minor: 1. Initial calibration did not meet the method specific criteria for n-butyl alcohol (initial calibration) in column #2. Results reported are from column #1. Isopropanol continuing calibration verification the outside method specific criteria in one of the columns. No action taken, professional judgment.

Critical findings: **None**
Major findings: **None**
Minor findings: **None**

COMMENTS: Results are valid and can be used for decision making purposes.

Reviewers Name: **Rafael Infante**
Chemist License 1888

Signature:

A handwritten signature in blue ink, appearing to read "Rafael Infante", is written over a horizontal line.

Date: **April 16, 2016**

SAMPLE ORGANIC DATA SAMPLE SUMMARY**Sample ID: JC16038-1****Sample location: BMSMC Building 5 Area****Sampling date: 3/9/2016****Matrix: Groundwater****METHOD: 8015C**

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-2**Sample location: BMSMC Building 5 Area****Sampling date: 3/9/2016****Matrix: Groundwater****METHOD: 8015C**

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-3**Sample location: BMSMC Building 5 Area****Sampling date: 3/9/2016****Matrix: Groundwater****METHOD: 8015C**

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-4
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8015C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-5
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8015C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-6
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-7
Sample location: BMSMC Building 5 Area
Sampling date: 3/9/2016
Matrix: Groundwater

METHOD: 8015C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-8
Sample location: BMSMC Building 5 Area
Sampling date: 3/8/2016
Matrix: Groundwater

METHOD: 8015C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-9
Sample location: BMSMC Building 5 Area
Sampling date: 3/8/2016
Matrix: Groundwater

METHOD: 8015C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

Sample ID: JC16038-10

Sample location: BMSMC Building 5 Area

Sampling date: 3/8/2016

Matrix: Groundwater

METHOD: 8015C

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|-------------------|--------|-------|-----------------|----------|------------|------------|
| Ethanol | 100 | ug/l | 1.0 | - | U | Yes |
| Isobutyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Isopropyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Propyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| n-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| sec-Butyl Alcohol | 100 | ug/l | 1.0 | - | U | Yes |
| Methanol | 200 | ug/l | 1.0 | - | U | Yes |

DATA REVIEW WORKSHEETS

Project Number: JC16038
Date: 03/08-09/2016
Shipping Date: 03/09-10/2016
EPA Region: 2

REVIEW OF VOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update III, December 1996)," specifically for Methods 8000/8015C are utilized. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

The hardcopied (laboratory name) Accutest data package received has been reviewed and the quality control and performance data summarized. The modified data review for VOCs included:

Lab. Project/SDG No.: JC16038 Sample matrix: Groundwater
No. of Samples: 10

Trip blank No.: JC16038-7
Field blank No.: JC16038-9
Equipment blank No.: -
Field duplicate No.: JC16038-5/-6 (MW-16/MW-16D)

| | |
|---|---|
| <input checked="" type="checkbox"/> Data Completeness | <input checked="" type="checkbox"/> Laboratory Control Spikes |
| <input checked="" type="checkbox"/> Holding Times | <input checked="" type="checkbox"/> Field Duplicates |
| <input type="checkbox"/> N/A GC/MS Tuning | <input checked="" type="checkbox"/> Calibrations |
| <input type="checkbox"/> N/A Internal Standard Performance | <input checked="" type="checkbox"/> Compound Identifications |
| <input checked="" type="checkbox"/> Blanks | <input checked="" type="checkbox"/> Compound Quantitation |
| <input checked="" type="checkbox"/> Surrogate Recoveries | <input checked="" type="checkbox"/> Quantitation Limits |
| <input checked="" type="checkbox"/> Matrix Spike/Matrix Spike Duplicate | |

Overall Comments: Low molecular weight alcohols by SW-846_8015C (DAI)

Definition of Qualifiers:

J- Estimated results
U- Compound not detected
R- Rejected data
UJ- Estimated not detected

Reviewer: Rafael de la Cruz
Date: April 15, 2016

Figure 1

MISSING INFORMATION

DATE LAB. CONTACTED

DATE RECEIVED

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

| SAMPLE ID | DATE SAMPLED | DATE ANALYZED | pH | ACTION |
|--|--------------|---------------|----|--------|
| | | | | |
| All samples analyzed within the recommended method holding time. | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH \leq 2, 4°C), no air bubbles.

Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.

Soil samples- 7 days from sample collection.

Cooler temperature (Criteria: 4 ± 2 °C): 3.6°C

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).

If the % solids of soil samples is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).

If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).

If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).

If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).

If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

DATA REVIEW WORKSHEETS

All criteria were met N/A
Criteria were not met see below

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

 N/A The BFB performance results were reviewed and found to be within the specified criteria.

 N/A BFB tuning was performed for every 12 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

List the samples affected:

If mass calibration is in error, all associated data are rejected.

DATA REVIEW WORKSHEETS

All criteria were met _____
 Criteria were not met _____
 and/or see below X

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration: 02/29/16
 Dates of continuing calibration: 02/29/16 (initial); 03/17/16; 03/18/16
 Instrument ID number: GCGH
 Matrix/Level: Aqueous/low

| DATE | LAB FILE ID# | CRITERIA OUT RFs, %RSD, %D, r | COMPOUND | SAMPLES AFFECTED |
|----------|--------------|----------------------------------|------------|---------------------|
| 02/29/16 | GH103541.D | 26.96% (RSD) (#2) | n-Butanol | - |
| 03/17/16 | CC5193-5000 | -21.5% (D) (#2) | Isobutanol | - |
| 03/17/16 | CC5193-5000 | -28.8% (D) (#1) | Isobutanol | - |

Note: Initial and continuing calibration meets method specific criteria except for n-butyl alcohol (initial calibration) in column #2. Results reported are from column #1. Isopropanol continuing calibration verification outside method specific criteria in one of the columns. No action taken, professional judgment.

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.

All %RSD must be $\leq 15\%$ regardless of method requirements for CCC.

All %Ds must be $\leq 20\%$ regardless of method requirements for CCC.

It should be noted that Region 2 SOP HW-24 does not specify criterion for the curve correlation coefficient (r). A limit for $r \geq 0.995$ has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05 , estimate positive results (J) and reject nondetects (R), regardless of method requirements.

If any compound has a %RSD $> 15\%$, estimate positive results (J) and use professional judgment to qualify nondetects.

If any compound has a %RSD $> 90\%$, estimate positive results (J) and reject nondetects (R).

If any compound has a % D $> 20\%$, estimate positive results (J) and reject nondetects (R).

If any compound has a % D $> 20\%$, estimate positive results (J) and nondetects (UJ).

If any compound has a % D $> 90\%$, estimate positive results (J) and reject nondetects (R).

If any compound has $r < 0.995$, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below

V.A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

| DATE ANALYZED | LAB ID | LEVEL/MATRIX | COMPOUND | CONCENTRATION UNITS |
|---------------|---|--------------|----------|---------------------|
| | | | | |
| | | | | |
| | All_method_blank_meeth_method_specific_criteria | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Field/Equipment/Trip blank

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below _____

V B. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)

ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is $<$ sample quantitation limit (SQL) and \leq AL, report the compound as not detected (U) at the SQL.

If the concentration is \geq SQL but \leq AL, report the compound as not detected (U) at the reported concentration.

If the concentration is > SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately

Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met ☒
 Criteria were not met
 and/or see below

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.

Matrix: solid/aqueous

| SAMPLE ID | SURROGATE COMPOUND | | | | ACTION |
|-----------|--------------------|------|--------|-----|--------|
| | Hexanol | DBFM | TOL-d8 | BFB | |

All surrogate recoveries within laboratory control limits. _____

QC Limits* (Aqueous)

_____ LL to UL _____ 56 to 145 _____ to _____ to _____ to _____

QC Limits* (Solid-Low)

_____ LL to UL _____ to _____ to _____ to _____ to _____

QC Limits* (Solid-Med)

_____ LL to UL _____ to _____ to _____ to _____ to _____

1,2-DCA = 1,2-Dichloromethane-d4

TOL-d8 = Toluene-d8

DBFM = Dibromofluoromethane

BFB = Bromofluorobenzene

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.

* If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

Actions:

| QUALITY | %R < 10% | %R = 10% - LL | %R > UL |
|--------------------|----------|---------------|---------|
| Positive results | J | J | J |
| Nondetects results | R | UJ | Accept |

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.

If any one surrogate in a fraction shows < 10 % recovery.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below _____

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID: JC15796-1MS/-1MSD Matrix/Level: Groundwater
 Sample ID: JC16038-1MS/-1MSD Matrix/Level: Groundwater

| MS OR MSD | COMPOUND | % R | RPD | QC LIMITS | ACTION |
|---|----------|-----|-----|-----------|--------|
| <u> MS/MSD_%_recoveries_and_RPD_within_laboratory_control_limits </u> | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 70 – 130 %.

Actions:

| QUALITY | %R < LL | %R > UL |
|--------------------|---------|---------|
| Positive results | J | J |
| Nondetects results | R | Accept |

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

- If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).
- If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).
- If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below

VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD – Unspiked Compounds

It should be noted that Region 2 SOP HW-24 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

Sample ID: _____ Matrix/Level/Unit: _____

[illegible]

Actions:

- * If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).
* If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below _____

VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD?
Yes or **No**. If no make note in data review memo.

List the %R of compounds which do not meet the criteria

| LCS ID | COMPOUND | % R | QC LIMIT |
|--|----------|-----|----------|
| Recoveries within laboratory control limits. _____ | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 70 – 130 %.

Actions:

| QUALITY | %R < LL | %R > UL |
|--------------------|---------|---------|
| Positive results | J | J |
| Nondetects results | R | Accept |

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R).

If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or No.

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

IX. FIELD/LABORATORY DUPLICATE PRECISION

Sample IDs: JC16038-5/-6

Matrix: Groundwater

Field/laboratory duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.

Suggested criteria: RPD \pm 30% for aqueous samples, RPD \pm 50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

| COMPOUND | SQL | SAMPLE CONC. | DUPLICATE CONC. | RPD | ACTION |
|--|-----|--------------|-----------------|-----|--------|
| | | | | | |
| RPD within laboratory and generally acceptable control limits. | | | | | |
| | | | | | |
| | | | | | |

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met N/A
Criteria were not met
and/or see below _____

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

- * Area of +100% or -50% of the IS area in the associated calibration standard.
- * Retention time (RT) within 30 seconds of the IS area in the associated calibration standard.

[illegible]

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

| QUALITY | IS AREA < -25% | IS AREA = -25 % TO - 50% | IS AREA > + 100% |
|---------------------|----------------|-----------------------------|------------------|
| Positive results | J | J | J |
| Nondetected results | R | UJ | ACCEPT |

2. If a IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below _____

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

JC16038-1

Hexanol

RF = 127.5

$$[] = (477585)/(127.5)$$

$$= 3745.8 \text{ ppb OK}$$

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below

XII. QUANTITATION LIMITS

A. Dilution performed

[illegible]

B. Percent Solids

List samples which have $\leq 50\%$ solids

Actions:

If the % solids of a soil sample is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solids of a soil sample is < 10%, estimate positive results (J) and reject nondetects (R)

EXECUTIVE NARRATIVE

SDG No: **JC16038** Laboratory: **Accutest, New Jersey**
Analysis: **SW846-8081B** Number of Samples: **3**
Location: **BMSMC, Building 5 Area**
Humacao, PR

SUMMARY: Five (5) groundwater samples were analyzed for selected pesticides following method SW846-8081B. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence *Hazardous Waste Support Section SOP No. HW-36A, Revision 0, June, 2015. SOM02.2. Pesticide Data Validation.* The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

Results are valid and can be used for decision making purposes.

Critical issues: None
Major: None
Minor: 1. No MS/MSD duplicate analyzed with this data package. LCS/LCSD used to assess accuracy; % recoveries and RPD within laboratory control limits.

Critical findings: None
Major findings: None
Minor findings: None

COMMENTS: Results are valid and can be used for decision making purposes.

Reviewers Name: Rafael Infante
Chemist License 1888

Signature:

A handwritten signature in blue ink, appearing to read 'Rafael Infante', is written over a horizontal line.

Date: April 16, 2016

SAMPLE ORGANIC DATA SAMPLE SUMMARY

Sample ID: JC16038-8

Sample location: BMSMC Building 5 Area

Sampling date: 8-Mar-16

Matrix: Groundwater

METHOD: 8081B

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|---------------------|---------------|--------------|------------------------|-----------------|-------------------|-------------------|
| beta-BHC | 0.010 | ug/l | 1 | - | - | Yes |
| 4,4'-DDD | 0.010 | ug/l | 1 | - | - | Yes |
| 4,4'-DDT | 0.010 | ug/l | 1 | - | - | Yes |

Sample ID: JC16038-9

Sample location: BMSMC Building 5 Area

Sampling date: 8-Mar-16

Matrix: Groundwater

METHOD: 8081B

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|---------------------|---------------|--------------|------------------------|-----------------|-------------------|-------------------|
| beta-BHC | 0.010 | ug/l | 1 | - | U | Yes |
| 4,4'-DDD | 0.010 | ug/l | 1 | - | U | Yes |
| 4,4'-DDT | 0.010 | ug/l | 1 | - | U | Yes |

Sample ID: JC16038-10

Sample location: BMSMC Building 5 Area

Sampling date: 8-Mar-16

Matrix: Groundwater

METHOD: 8081B

| Analyte Name | Result | Units | Dilution Factor | Lab Flag | Validation | Reportable |
|---------------------|---------------|--------------|------------------------|-----------------|-------------------|-------------------|
| beta-BHC | 0.011 | ug/l | 1 | - | - | Yes |
| 4,4'-DDD | 0.011 | ug/l | 1 | - | - | Yes |
| 4,4'-DDT | 0.011 | ug/l | 1 | - | - | Yes |

DATA REVIEW WORKSHEETS

Project/Case Number: JC16038
 Sampling Date: March 8, 2016
 Shipping Date: March 10, 2016
 EPA Region No.: 2

REVIEW OF PESTICIDE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence *Hazardous Waste Support Section SOP No. HW-36A, Revision 0, June, 2015. SOM02.2. Pesticide Data Validation*. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

The hardcopied (laboratory name) Accutest data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: JC16038 Sample matrix: Groundwater
 No. of Samples: 3

Trip blank No.: -
 Field blank No.: JC16038-9
 Equipment blank No.: -
 Field duplicate No.: -
 Field spikes No.: -
 QC audit samples: -

| | |
|---|---|
| <input checked="" type="checkbox"/> Data Completeness | <input checked="" type="checkbox"/> Laboratory Control Spikes |
| <input checked="" type="checkbox"/> Holding Times | <input checked="" type="checkbox"/> Field Duplicates |
| <input type="checkbox"/> N/A GC/MS Tuning | <input checked="" type="checkbox"/> Calibrations |
| <input checked="" type="checkbox"/> Internal Standard Performance | <input checked="" type="checkbox"/> Compound Identifications |
| <input checked="" type="checkbox"/> Blanks | <input checked="" type="checkbox"/> Compound Quantitation |
| <input checked="" type="checkbox"/> Surrogate Recoveries | <input checked="" type="checkbox"/> Quantitation Limits |
| <input checked="" type="checkbox"/> Matrix Spike/Matrix Spike Duplicate | |

Overall Comments: Selected pesticides by SW846-8081B

Definition of Qualifiers:

J- Estimated results
 U- Compound not detected
 R- Rejected data
 UJ- Estimated nondetect

Reviewer: Rafael Delant
 Date: April 16, 2016

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION

DATE LAB. CONTACTED

DATE RECEIVED

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

| SAMPLE ID | DATE SAMPLED | DATE EXTRACTED/ANALYZED | ACTION |
|-----------|--------------|-------------------------|--------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Preservatives: All samples extracted and analyzed within the required criteria.

Criteria

Aqueous samples - seven (7) days from sample collection for extraction; 40 days from sample collection for analysis.

Non-aqueous samples – fourteen (14) days from sample collection for extraction; 40 days from sample collection for analysis.

Cooler temperature (Criteria: 4 ± 2 °C): 3.6°C - OK

Actions

Qualify aqueous sample results using preservation and technical holding time information as follows:

- If there is no evidence that the samples were properly preserved ($T = 4^{\circ}\text{C} \pm 2^{\circ}\text{C}$), and the samples were extracted or analyzed within the technical holding times, qualify detects as estimated (J) and non-detects as estimated (UJ).
- If there is no evidence that the samples were properly preserved ($T = 4^{\circ}\text{C} \pm 2^{\circ}\text{C}$), and the samples were extracted or analyzed outside the technical holding times, qualify detects as estimated (J) and non-detects as estimated (UJ).
- If the samples were properly preserved, and were extracted and analyzed within the technical holding times, no qualification of the data is necessary.
- If the samples were properly preserved, and were extracted or analyzed outside the technical holding times, qualify detects as estimated (J) and non-detects as estimated (UJ). Note in the Data Review Narrative that holding times were exceeded and the effect of exceeding the holding time on the resulting data.

DATA REVIEW WORKSHEETS

- e. Use professional judgment to qualify samples whose temperature upon receipt at the laboratory is either below 2 degrees centigrade or above 6 degrees centigrade.
- f. If technical holding times are grossly exceeded, use professional judgment to qualify the data.

Qualify non-aqueous sample results using preservation and technical holding time information as follows:

- a. If there is no evidence that the samples were properly preserved ($T = 4^{\circ}\text{C} \pm 2^{\circ}\text{C}$), and the samples were extracted or analyzed within the technical holding time, qualify detects as estimated (J) and non-detects as estimated (UJ).
- b. If there is no evidence that the samples were properly preserved ($T = 4^{\circ}\text{C} \pm 2^{\circ}\text{C}$), and the samples were extracted or analyzed outside the technical holding time, qualify detects as estimated (J) and non-detects as estimated (UJ).
- c. If the samples were properly preserved, and were extracted and analyzed within the technical holding time, no qualification of the data is necessary.
- d. If the samples were properly preserved, and were extracted or analyzed outside the technical holding time, qualify detects as estimated (J) and non-detects as estimated (UJ). Note in the Data Review Narrative that holding times were exceeded and the effect of exceeding the holding time on the resulting data.
- e. Use professional judgment to qualify samples whose temperature upon receipt at the laboratory is either below 2 degrees centigrade or above 6 degrees centigrade.
- f. If technical holding times are grossly exceeded, use professional judgment to qualify the data.

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met see below _____

GAS CHROMATOGRAPH WITH ELECTRON CAPTURE DETECTOR (GC/ECD) INSTRUMENT PERFORMANCE CHECK (SECTIONS 1 TO 5)

1. Resolution Check Mixture

Criteria

Is the resolution between two adjacent peaks in the Resolution Check Mixture C greater than or equal to 80.0% for all analytes for the primary column and greater than or equal to 50.0% for the confirmation column? Yes? or No?

Is the resolution between two adjacent peaks in the Resolution Check Mixture (A and B) greater than or equal to 60.0%? Yes? or No?

Note: If resolution criteria are not met, the quantitative results may not be accurate due to inadequate resolution. Qualitative identifications may also be questionable if coelution exists.

Action

- a. Qualify detects for target compounds that were not adequately resolved as tentatively identified (NJ).
- b. Qualify non-detected compounds as unusable (R).

2. Performance Evaluation Mixture (PEM) Resolution Criteria

Criteria

Is PEM analysis performed at the required frequency (at the end of each pesticide initial calibration sequence and every 12 hours)? Yes? or No?

Action

- a. If PEM is not performed at the required frequency, qualify all associated sample and blank results as unusable (R).

Criteria

Is PEM % Resolution < 90%? Yes? or No?

Action

- a. a. Qualify detects for target compounds that were not adequately resolved as tentatively identified (NJ).
- b. Qualify non-detected compounds as unusable (R).

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met see below

3. PEM 4,4'-DDT Breakdown

Criteria

Is the PEM 4,4'-DDT % Breakdown >20.0% and 4,4'-DDT is detected? Yes? or No?

Action

a. Qualify detects for 4,4'-DDT; detects for 4,4'-DDD; and detects for 4,4'-DDE as estimated (J)

Criteria

Is the PEM 4,4'-DDT % Breakdown >20.0% and 4,4'-DDT is not detected Yes? or No?

Action

- a. Qualify non-detects for 4,4'- DDT as unusable (R)
- b. Qualify detects for 4,4'-DDD as tentatively identified (NJ)
- c. Qualify detects for 4,4'-DDE as tentatively identified (NJ)

4. PEM Endrin Breakdown

Criteria

Is the PEM Endrin % Breakdown >20.0% and Endrin is detected? Yes? or No?

Action

a. Qualify detects for Endrin; detects for Endrin aldehyde; and detects for Endrin ketone as estimated (J)

Criteria

Is the PEM Endrin % Breakdown >20.0% and Endrin is not detected Yes? or No?

Action

- a. Qualify non-detects for Endrin as unusable (R)
- b. Qualify detects for Endrin aldehyde as tentatively identified (NJ)
- c. Qualify detects for Endrin ketone as tentatively identified (NJ)

All criteria were met X
Criteria were not met see below

5. Mid-point Individual Standard Mixture Resolution -

Criteria

Is the resolution between two adjacent peaks in the Resolution Check Mixture C greater than or equal to 80.0% for all analytes for the primary column and greater than or equal to 50.0% for the confirmation column?
Yes? or No?

Is the resolution between two adjacent peaks in the Resolution Check Mixture (A and B) greater than or equal to 90.0%?
Yes? or No?

Note: If resolution criteria are not met, the quantitative results may not be accurate due to inadequate resolution. Qualitative identifications may also be questionable if coelution exists.

Action

- a. Qualify detects for target compounds that were not adequately resolved as tentatively identified (NJ).
- b. Qualify non-detected compounds as unusable (R).

Criteria

Is mid-point individual standard mixture analysis performed at the required frequency (every 12 hours)?
Yes? or No?

Action

- a. If the mid-point individual standard mixture analysis is not performed at the required frequency, qualify all associated sample and blank results as unusable (R).

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration: 03/18/16
 Dates of continuing calibration: 03/18/16 (initial);_03/20/16;_03/21/16_
 Instrument ID numbers: GC4G
 Matrix/Level: Aqueous/low

| DATE | LAB ID# | FILE | CRITERIA OUT RFs, %RSD, %D, r | COMPOUND | SAMPLES AFFECTED |
|--|------------|------|----------------------------------|----------|---------------------|
| | | | | | |
| Initial and continuing calibration meets the required criteria. Closing calibration performed and within the required criteria | | | | | |
| | | | | | |
| | | | | | |

Criteria

Are a five point calibration curve delivered with concentration levels as shown in Table 3 of SOP HW-36A, Revision 0, June, 2015? Yes ? or No?

Actions

If the standard concentrations listed in Table 3 are not used, use professional judgment to evaluate the effect on the data

Criteria

Are RT Windows calculated correctly? Yes ? or No?

Action

Recalculate the windows and use the corrected values for all evaluations.

Criteria

Are the Percent Relative Standard Deviation (%RSD) of the CFs for each of the single component target compounds less than or equal to 20.0%, except for alpha-BHC and delta-BHC? Yes ? or No?

Are the %RSD of the CFs for alpha-BHC and delta-BHC less than or equal to 25.0%. Yes ? or No?

DATA REVIEW WORKSHEETS

Is the %RSD of the CFs for each of the Toxaphene peaks must be < 30% when 5-point ICAL is performed? Yes? or No?

Is the %RSD of the CFs for the two surrogates (tetrachloro-m-xylene and decachlorobiphenyl) less than or equal to 30.0%. Yes? or No?

Action

- a. If the %RSD criteria are not met, qualify detects as estimated (J) and use professional judgment to qualify non-detected target compounds.
- b. If the %RSD criteria are within allowable limits, no qualification of the data is necessary

Continuing Calibration Checks

Criteria

Is the continuing calibration standard analyzed at the acceptable time intervals? Yes? or No?

Action

- a. If more than 14 hours has elapsed from the injection of the instrument blank that begins an analytical sequence (opening CCV) and the injection of either a PEM or mid-point concentration of the Individual Standard Mixtures (A and B) or (C), qualify all data as unusable (R).
- b. If more than 12 hours has elapsed from the injection of the instrument blank that begins an analytical sequence (opening CCV) and the injection of the last sample or blank that is part of the same analytical sequence, qualify all data as unusable (R).
- c. If more than 72 hours has elapsed from the injection of the sample with a Toxaphene detection and the Toxaphene Calibration Verification Standard (CS3), qualify all data as unusable (R).

Criteria

Is the Percent Difference (%D) within $\pm 25.0\%$ for the PEM sample? Yes? or No?

Action

- a. Qualify associated detects as estimated (J) and non-detects as estimated (UJ).

Criteria

For the Calibration Verification Standard (CS3); is the Percent Difference (%D) within $\pm 25.0\%$? Yes? or No?

Action

Qualify associated detects as estimated (J) and non-detects as estimated (UJ).

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below

Criteria

Is the PEM 4,4'-DDT % Breakdown >20.0% and 4,4'-DDT is detected? Yes? or No?

Action

- a. Qualify detects for 4,4'-DDT; detects for 4,4'-DDD; and detects for 4,4'-DDE as estimated (J)
- b. Non-detected associated compounds are not qualified

Criteria

Is the PEM 4,4'-DDT % Breakdown >20.0% and 4,4'-DDT is not detected Yes? or No?

Action

- a. Qualify non-detects for 4,4'- DDT as unusable (R)
- b. Qualify detects for 4,4'-DDD as tentatively identified (NJ)
- c. Qualify detects for 4,4'-DDE as tentatively identified (NJ)

Criteria

Is the PEM Endrin % Breakdown >20.0% and Endrin is detected? Yes? or No?

Action

- a. Qualify detects for Endrin; detects for Endrin aldehyde; and detects for Endrin ketone as estimated (J)
- b. Non-detected associated compounds are not qualified

Criteria

Is the PEM Endrin % Breakdown >20.0% and Endrin is not detected Yes? or No?

Action

- a. Qualify non-detects for Endrin as unusable (R)
- b. Qualify detects for Endrin aldehyde as tentatively identified (NJ)
- c. Qualify detects for Endrin ketone as tentatively identified (NJ)

A separate worksheet should be filled for each initial curve

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below _____

BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

CRQL concentration _____ N/A _____

Laboratory blanks

| DATE ANALYZED | LAB ID | LEVEL/ MATRIX | COMPOUND | CONCENTRATION UNITS |
|--|--------|---------------|----------|---------------------|
| _No target analytes detected in method blanks at a reporting limit of 0.01 and 0.001 ug/L. | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Field/Equipment/Trip blank

| DATE ANALYZED | LAB ID | LEVEL/ MATRIX | COMPOUND | CONCENTRATION UNITS |
|--|--------|---------------|----------|---------------------|
| _No target analyte detected in field blank. No equipment/trip blank analyzed with this data package. | | | | |
| | | | | |
| | | | | |
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DATA REVIEW WORKSHEETS

All criteria were met ☒
 Criteria were not met
 and/or see below _____

BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

The concentration of non-target compounds in all blanks must be less than or equal to 10 µg/L. The concentration of each target compound found in the method or field blanks must be less than its CRQL listed in the method.

Data concerning the field blanks are not evaluated as part of the CCS process. If field blanks are present, the data reviewer should evaluate this data in a similar fashion as the method blanks.

Specific actions are as follows:

Blank Actions for Pesticide Analyses

| Blank Type | Blank Result | Sample Result | Action for Samples |
|--|---------------------|----------------------------------|--|
| Method, Sulfur Cleanup, Instrument, Field, TCLP/SPLP | Detects | Not detected | No qualification required |
| | < CRQL | < CRQL | Report CRQL value with a U |
| | | ≥ CRQL | No qualification required |
| | > CRQL | < CRQL | Report CRQL value with a U |
| | | ≥ CRQL and ≤ blank concentration | Report blank value for sample concentration with a U |
| | | ≥ CRQL and > blank concentration | No qualification required |
| | = CRQL | ≤ CRQL | Report CRQL value with a U |
| | | > CRQL | No qualification required |
| | Gross contamination | Detects | Report blank value for sample concentration with a U |

DATA REVIEW WORKSHEETS

All criteria were met X
Criteria were not met
and/or see below _____

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below _____

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.

Matrix: Groundwater

| Lab Sample ID | Lab File ID | S1 a | S1 b | S2 a | S2 b |
|---------------------------|--------------------|------|------|------|------|
| JC16038-8 | 4G66288.D | 97 | 99 | 101 | 103 |
| JC16038-9 | 4G66287.D | 78 | 86 | 67 | 73 |
| JC16038-10 | 4G66289.D | 69 | 76 | 72 | 81 |
| OP92108-BS1 | 4G66278.D | 75 | 83 | 78 | 89 |
| OP92108-BSD | 4G66279.D | 86 | 97 | 94 | 103 |
| OP92108-MB1 | 4G66277.D | 84 | 85 | 99 | 94 |
| Surrogate Compounds | Recovery Limits | | | | |
| S1 = Tetrachloro-m-xylene | 26-132% | | | | |
| S2 = Decachlorobiphenyl | 10-118% | | | | |

(a) Recovery from GC signal #1

(b) Recovery from GC signal #2

Note: Surrogate recoveries within laboratory control limits.

Actions:

- For any surrogate recovery greater than 150%, qualify detected target compounds as biased high (J+).
- Do not qualify non-detected target compounds for surrogate recovery > 150 %.
- If both surrogate recoveries are greater than or equal to 30% and less than or equal to 150%, no qualification of the data is necessary.
- For any surrogate recovery greater than or equal to 10% and less than 30%, qualify detected target compounds as biased low (J-).
- For any surrogate recovery greater than or equal to 10% and less than 30%, qualify non-detected target compounds as approximated (UJ).
- If low surrogate recoveries are from sample dilution, professional judgment should be used to determine if the resulting data should be qualified. If sample dilution is not a factor:
 - Qualify detected target compounds as biased low (J-).
 - Qualify non-detected target compounds as unusable (R).

DATA REVIEW WORKSHEETS

- g. If surrogate RTs in PEMs, Individual Standard Mixtures, samples, and blanks are outside of the RT Windows, the reviewer must use professional judgment to qualify data.
- h. If surrogate RTs are within RT windows, no qualification of the data is necessary.
- i. If the two surrogates were not added to all samples, MS/MSDs, standards, LCSs, and blanks, use professional judgment in qualifying data as missing surrogate analyte may not directly apply to target analytes.

Summary Surrogate Actions for Pesticide Analyses

| Criteria | Action* | |
|---|---------------------------|-------------------------------|
| | Detected Target Compounds | Non-detected Target Compounds |
| %R > 150% | J+ | No qualification |
| 30% < %R < 150% | No qualification | |
| 10% < %R < 30% | J- | UJ |
| %R < 10% (sample dilution not a factor) | J- | R |
| %R < 10% (sample dilution is a factor) | Use professional judgment | |
| RT out of RT window | Use professional judgment | |
| RT within RT window | No qualification | |

- * Use professional judgment in qualifying data, as surrogate recovery problems may not directly apply to target analytes.

DATA REVIEW WORKSHEETS

All criteria were met N/A
 Criteria were not met
 and/or see below _____

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

Data for MS and MSDs will not be present unless requested by the Region.

Notify the Contract Laboratory Program Project Officer (CLP PO) if a field blank was used for the MS and MSD, unless designated as such by the Region.

NOTE: For a Matrix Spike that does not meet criteria, apply the action to only the field sample used to prepare the Matrix Spike sample. If it is clearly stated in the data validation materials that the samples were taken through incremental sampling or some other method guaranteeing the homogeneity of the sample group, then the entire sample group may be qualified.

List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID: _____ Matrix/Level: _____

| MS OR MSD | COMPOUND | % R | RPD | QC LIMITS | ACTION |
|--|----------|-----|-----|-----------|--------|
| _No_MS/MSD_analyzed_with_this_data_package._LCS/LCSD_used_to_assess_accuracy;_%_ | | | | | |
| _recoveries_and_RPD_within_laboratory_control_limits._____ | | | | | |
| _____ | | | | | |
| _____ | | | | | |
| _____ | | | | | |

Action

No qualification of the data is necessary on MS and MSD data alone. However, using professional judgment, the validator may use the MS and MSD results in conjunction with other QC criteria and determine the need for some qualification of the data.

A separate worksheet should be used for each MS/MSD pair.

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

| LCS Spike Compound | Recovery Limits (%) |
|----------------------------------|---------------------|
| gamma-BHC | 50 – 120 |
| Heptachlor epoxide | 50 – 150 |
| Dieldrin | 30 – 130 |
| 4,4'-DDE | 50 – 150 |
| Endrin | 50 – 120 |
| Endosulfan sulfate | 50 – 120 |
| trans-Chlordane | 30 – 130 |
| Tetrachloro-m-xylene (surrogate) | 30 – 150 |
| Decachlorobiphenyl (surrogate) | 30 – 150 |

LCS concentrations: 0.25 ug/L

List the %R of compounds which do not meet the criteria

| LCS ID | COMPOUND | % R | QC LIMIT |
|--------|----------|-----|----------|
| | | | |
| | | | |
| | | | |
| | | | |

Action

The following guidance is suggested for qualifying sample data for which the associated LCS does not meet the required criteria.

- If the LCS recovery exceeds the upper acceptance limit, qualify detected target compounds as estimated (J). Do not qualify non-detected target compounds.
- If the LCS recovery is less than the lower acceptance limit, qualify detected target compounds as estimated (J) and non-detects as unusable (R).
- Use professional judgment to qualify data for compounds other than those compounds that are included in the LCS.
- Use professional judgment to qualify non-LCS compounds. Take into account the compound class, compound recovery efficiency, analytical problems associated with each compound, and comparability in the performance of the LCS compound to the non-LCS compound.
- If the LCS recovery is within allowable limits, no qualification of the data is necessary.

DATA REVIEW WORKSHEETS

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or No.

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

All criteria were met _____
Criteria were not met _____
and/or see below ___N/A___

FLORISIL CARTRIDGE PERFORMANCE CHECK

NOTE: Florisil cartridge cleanup is mandatory for all extracts.

Criteria

Is the Florisil cartridge performance check conducted at least once on each lot of cartridges used for sample cleanup or every 6 months, whichever is most frequent? Yes? or No?

Criteria

Are the results for the Florisil Cartridge Performance Check solution included with the data package? Yes? or No?

Note: If % criteria are not met, examine the raw data for the presence of polar interferences and use professional judgment in qualifying the data as follows:

Action:

- a. If the Percent Recovery is greater than 120% for any of the pesticide target compounds in the Florisil Cartridge Performance Check, qualify detected compounds as estimated (J). Do not qualify non-detected target compounds.
- b. If the Percent Recovery is greater than or equal to 80% and less than or equal to 120% for all the pesticide target compounds, no qualification of the data is necessary.
- c. If the Percent Recovery is greater than or equal to 10% and less than 80% for any of the pesticide target compounds in the Florisil Cartridge Performance Check, qualify detected target compounds as estimated (J) and non-detected target compounds as approximated (UJ).
- d. If the Percent Recovery is less than 10% for any of the pesticide target compounds in the Florisil Cartridge Performance Check, qualify detected compounds as estimated (J) and qualify non-detected target compounds as unusable (R).
- e. If the Percent Recovery of 2,4,5-trichlorophenol in the Florisil Cartridge Performance Check is greater than or equal to 5%, use professional judgment to qualify detected and non-detected target compounds, considering interference on the sample chromatogram.

Note: State in the Data Review Narrative potential effects on the sample data resulting from the Florisil Cartridge Performance Check analysis not yielding acceptable results.

Note: No information for florisil cartridge performance check included in data package. No qualification of the data performed, professional judgment.

All criteria were met _____
Criteria were not met _____
and/or see below N/A

GEL PERMEATION CHROMATOGRAPHY (GPC) PERFORMANCE CHECK

NOTE: GPC cleanup is mandatory for all soil samples.

If GPC criteria are not met, examine the raw data for the presence of high molecular weight contaminants; examine subsequent sample data for unusual peaks; and use professional judgment in qualifying the data. Notify the Contract Laboratory Program Project Officer (CLP PO) if the laboratory chooses to analyze samples under unacceptable GPC criteria.

Action:

- a. If the Percent Recovery is less than 10% for the pesticide compounds and surrogates during the GPC calibration check, the non-detected target compounds may be suspect, qualify detected compounds as estimated (J).
- b. If the Percent Recovery is less than 10% for the pesticide compounds and surrogates during the GPC calibration check, qualify all non-detected target compounds as unusable (R).
- c. If the Percent Recovery is greater than or equal to 10% and is less than 80% for any of the pesticide target compounds in the GPC calibration, qualify detected target compounds as estimated (J) and non-detected target compounds as approximated (UJ).
- d. If the Percent Recovery is greater than or equal to 80% and less than or equal to 120% for all the pesticide target compounds, no qualification of the data is necessary.
- e. If high recoveries (i.e., greater than 120%) were obtained for the pesticides and surrogates during the GPC calibration check, qualify detected compounds as estimated (J). Do not qualify non-detected target compounds.

Note: State in the Data Review Narrative potential effects on the sample data resulting from the GPC cleanup analyses not yielding acceptable results.

Note: No information for performance of GPC cleanup included in data package. No qualification of the data performed, professional judgment.

All criteria were met X
Criteria were not met
and/or see below

TARGET COMPOUND IDENTIFICATION

Criteria:

1. Is Retention Times (RTs) of both of the surrogates and reported target compounds in each sample within the calculated RT Windows on both columns? Yes? or No?
2. Is the Tetrachloro-m-xylene (TCX) RT ± 0.05 minutes of the Mean RT (RT) determined from the initial calibration and Decachlorobiphenyl (DCB) within ± 0.10 minutes of the RT determined from the initial calibration? Yes? or No?
3. Is the Percent Difference (%D) for the detected mean concentrations of a pesticide target compound between the two Gas Chromatograph (GC) columns within the inclusive range of ± 25.0 %? Yes? or No?
4. When no analytes are identified in a sample; are the chromatograms from the analyses of the sample extract and the low-point standard of the initial calibration associated with those analyses on the same scaling factor? Yes? or No?
5. Does the chromatograms display the Single Component Pesticides (SCPs) detected in the sample and the largest peak of any multi-component analyte detected in the sample at less than full scale. Yes? or No?
6. If an extract is diluted; does the chromatogram display SCPs peaks between 10-100% of full scale, and multi-component analytes between 25-100% of full scale? Yes? or No?
7. For any sample; does the baseline of the chromatogram return to below 50% of full scale before the elution time of alpha-BHC, and also return to below 25% of full scale after the elution time of alpha-BHC and before the elution time of DCB? Yes? or No?
8. If a chromatogram is replotted electronically to meet these requirements; is the scaling factor used displayed on the chromatogram, and both the initial chromatogram and the replotted chromatogram submitted in the data package. Yes? or No?

Action:

- a. If the qualitative criteria for both columns were not met, all target compounds that are reported as detected should be considered non-detected.
- b. Use professional judgment to assign an appropriate quantitation limit using the following guidance:
 - i. If the detected target compound peak was sufficiently outside the pesticide RT Window, the reported values may be a false positive and should be replaced with the sample Contract Required Quantitation Limits (CRQL) value.

DATA REVIEW WORKSHEETS

- ii. If the detected target compound peak poses an interference with potential detection of another target peak, the reported value should be considered and qualified as unusable (R).
- c. If the data reviewer identifies a peak in both GC column analyses that falls within the appropriate RT Windows, but was reported as a non-detect, the compound may be a false negative. Use professional judgment to decide if the compound should be included.

Note: State in the Data Review Narrative all conclusions made regarding target compound identification.

- d. If the Toxaphene peak RT windows determined from the calibration overlap with SCPs or chromatographic interferences, use professional judgment to qualify the data.
- e. If target compounds were detected on both GC columns, and the Percent Difference between the two results is greater than 25.0%, consider the potential for coelution and use professional judgment to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, use professional judgment to determine how best to report, and if necessary, qualify the data according to these guidelines.
- f. If Toxaphene exhibits a marginal pattern-matching quality, use professional judgment to establish whether the differences are due to environmental "weathering" (i.e., degradation of the earlier eluting peaks relative to the later eluting peaks). If the presence of Toxaphene is strongly suggested, report results as presumptively present (N).

GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) CONFIRMATION

NOTE: This confirmation is not usually provided by the laboratory. In cases where it is provided, use professional judgment to determine if data qualified with "C" can be salvaged if it was previously qualified as unusable (R).

Action:

- a. If the quantitative criteria for both columns were met (≥ 5.0 ng/ μ L for SCPs and ≥ 125 ng/ μ L for Toxaphene), determine whether GC/MS confirmation was performed. If it was performed, qualify the data using the following guidance:
 - i. If GC/MS confirmation was not required because the quantitative criteria for both columns was not met, but it was still performed, use professional judgment when evaluating the data to decide whether the detect should be qualified with "C".
 - ii. If GC/MS confirmation was performed, but unsuccessful for a target compound detected by GC/ECD analysis, qualify those detects as "X".

DATA REVIEW WORKSHEETS

All criteria were met X
 Criteria were not met
 and/or see below

COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLS)

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

op92108-bs1 (Blank Spike) 4,4'-DDD RF = 0.764

$$[] = \frac{(72050664)(50)}{(255.3 \times 10^6)(0.764)}$$

= 18.47 ppb Ok

Action:

- If sample quantitation is different from the reported value, qualify result as unusable (R).
- When a sample is analyzed at more than one dilution, the lowest CRQLs are used unless a QC exceedance dictates the use of the higher CRQLs from the diluted sample.
- Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and its corresponding value on the original reporting form and substituting the data from the diluted sample.
- Results between the MDL and CRQL should be qualified as estimated (J).
- Results less than the MDL should be reported at the CRQL and qualified (U). MDLs themselves are not reported.
- For non-aqueous samples, if the percent moisture is less than 70.0%, no qualification of the data is necessary. If the percent moisture is greater than or equal to 70.0% and less than 90.0%, qualify detects as estimated (J) and non-detects as approximated (UJ). If the percent moisture is greater than or equal to 90.0%, qualify detects as estimated (J) and non-detects as unusable (R) (see Table).

Percent Moisture Actions for Pesticide Analysis for Non-Aqueous Samples

| Criteria | Action | |
|--------------------------|-------------------------------|-----------------------------------|
| | Detected Associated Compounds | Non-detected Associated Compounds |
| % Moisture < 70.0 | No qualification | |
| 70.0 < % Moisture < 90.0 | J | UJ |
| % Moisture > 90.0 | J | R |

DATA REVIEW WORKSHEETS

List samples which have $\leq 50\%$ solids

[illegible]

Note: If any discrepancies are found, the Region's designated representative may contact the laboratory to obtain additional information that could resolve any differences. If a discrepancy remains unresolved, the reviewer must use professional judgment to decide which value is the most accurate. Under these circumstances, the reviewer may determine that qualification of data is warranted. Note in the Data Review Narrative a description of the reasons for data qualification and the qualification that is applied to the data.

Dilution performed

[illegible]

DATA REVIEW WORKSHEETS

All criteria were met N/A
 Criteria were not met
 and/or see below

FIELD DUPLICATE PRECISION

NOTE: In the absence of QAPP guidance for validating data from field duplicates, the following action will be taken.

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples. Identify which samples within the data package are field duplicates. Estimate the relative percent difference (RPD) between the values for each compound. If large RPDs (> 50%) is observed, confirm identification of samples and note difference in the executive summary.

Sample IDs: - Matrix: -

| COMPOUND | SQL ug/L | SAMPLE CONC. | DUPLICATE CONC. | RPD | ACTION |
|---|-------------|-----------------|--------------------|-----|--------|
| | | | | | |
| | | | | | |
| No field/laboratory data included with this data package. LCS/LCSD % recovery RPD used to assess precision. RPD within the required criteria of < 50 %. | | | | | |
| | | | | | |
| | | | | | |

Actions:

a. Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

b. If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

- i. If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).
- ii. If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.
- iii. If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.
- iv. If both sample and duplicate results are not detected, no action is needed.

DATA REVIEW WORKSHEETS

OVERALL ASSESSMENT OF DATA

Action:

1. Use professional judgment to determine if there is any need to qualify data which were not qualified based on the Quality Control (QC) criteria previously discussed.
2. Write a brief narrative to give the user an indication of the analytical limitations of the data.

Note: The Contract Laboratory Program Project Officer (CLP PO) must be informed if any inconsistency of the data with the Sample Delivery Group (SDG) Narrative. If sufficient information on the intended use and required quality of the data is available, the reviewer should include their assessment of the usability of the data within the given context. This may be used as part of a formal Data Quality Assessment (DQA).

Overall assessment of the data: Results are valid; the data can be used for decision making purposes.